UNIVERSITY
OF MICHIGAN
DEC 30 1954
PERIODICAL
READING ROOM

THE AMERICAN NEPTUNE

A QUARTERLY JOURNAL OF MARITIME HISTORY

Women and Children Last: The Tragic Loss of the Steamship *Arctic*, by Alexander Crosby Brown, *p.* 237

Early Seventeenth-Century Ship Design, by William A. Baker, *p.* 262

Queen of the Hudson, by Donald C. Ringwald, Part II, *p.* 278

Recent Writings in Maritime History, by Robert Greenhalgh Albion, *p.* 300

PUBLISHED BY THE AMERICAN NEPTUNE, INCORPORATED
SALEM, MASSACHUSETTS

$6.50 a year $1.75 a copy

Documents, pp. 298-299

Instructions to Captain John Green, Commander of the *Empress of China*, for the First Voyage to China of a Ship Carrying the American Flag, *p.* 298

Index to Volume XIV, pp. 318-325

Advertisements, pp. 326-328

Entered as Second Class Matter, February 26, 1941, at the Post Office at Salem, Massachusetts, under the Act of March 3, 1879. Additional entry at the Post Office at Portland, Maine.

THE AMERICAN NEPTUNE

A QUARTERLY JOURNAL OF MARITIME HISTORY

Volume XIV. No. 4
October 1954

COPYRIGHT 1954 BY THE AMERICAN NEPTUNE INCORPORATED
SALEM, MASSACHUSETTS

Published by The American Neptune, Incorporated, Salem, Massachusetts

Printed by The Anthoensen Press, Portland, Maine

Collotype plates by The Meriden Gravure Company, Meriden, Connecticut

THE AMERICAN NEPTUNE

A Quarterly Journal *of Maritime History*

VOLUME XIV OCTOBER 1954 NUMBER 4

IN 1891 *Sidney Perley wrote, in his* Historic Storms of New England, *'On the afternoon of Wednesday, September* 8, 1869, *occurred the last violent gale that New England has experienced.' That storm was a monstrous great hurricane accompanied by heavy rain that reached its height between eight and nine o'clock in the evening. It was a narrow storm, cutting inside Cape Cod, its center passing over Fall River, hitting the coast again at Boston, and taking off from Cape Ann across the Gulf of Maine, striking the Maine coast a little beyond Portland.*

The gale of sixty-nine left devastation in its wake. Downed wires, trees, chimneys, and wrecked buildings cluttered its fifty-mile-wide path across the forlorn countryside. The shipping, particularly small fishing craft in the harbors, suffered. Marblehead, always wide open as a bootjack in such a storm, was a mess. Gloucester, near the storm's center, was especially hard hit, and the beach there was piled high with wrecks. In Maine, where the storm hit most heavily, at Kennebunk, Boothbay, Portland, and Orr's Island, the damage was severe and the loss of craft heavy.

Not until the famous storm of 1938 *was New England again to feel the full brunt of a hurricane. People had long since forgotten the fierce power and destructiveness of such a wind. Loss of life was heavy. A lesser, but nevertheless authoritative hurricane hit us in* 1944; *but a more vigorous surprise was due ten years later.*

The morning of 31 August 1954 was inclement. The sodden, gray cloud rack and heavy rain were driving before a strong northeast wind. At nine o'clock it looked like the makings of a good early no'theaster—nothing more. There was none of the strange yellow stillness with sudden little puffs of wind that preceded the 1938 blow. But as the morning wore on the rain diminished and the wind increased in intensity. By noontime there 'arose a great storm of wind' and hurricane Carol was lashing savagely along the coast. Once again yachts dragged their moorings, and small boats were demolished by the scores. Briefly the blue, sunny, wanton eye of Carol opened on the wet earth and passed on, the wind blowing once more at gale force as the back side of the storm passed over.

Ten days passed, and Carol's big sister Edna moved up the coast with a great fanfare and amid dire predictions of awful things to come. And come they very nearly did, but luckily the second of these destructive twins passed somewhat more easterly than the first, venting its latent power upon the coast of Maine and across Nova Scotia where losses were heavy. As the storm passed a heavy backlash roared out of the northwest. Two weeks later the ocean surf was still rolling in yellow (on the Ipswich and Plum Island beaches) from the fresh water run off.

It was unprecedented for two hurricanes to smite New England in such quick succession. With the long advance warning of the second storm people took precautions, obeyed instructions, and snugged down. But when the storm's center missed the region there was a distinct letdown. Everyone was thankful but, having prepared for something, there seemed to be an unconscious disappointment at having missed the best of it.

> *'Tis pleasant, by the cheerful hearth, to hear*
> *Of tempests, and the dangers of the deep,*
> *And pause at times, and feel that we are safe;*
> *Then listen to the perilous tale again,*
> *And, with an eager and suspended soul,*
> *Woo terror to delight us.*

ERNEST S. DODGE

Peabody Museum of Salem

Women and Children Last
The Tragic Loss of the Steamship Arctic*

BY ALEXANDER CROSBY BROWN

GEORGE Templeton Strong put down his copy of the New York *Herald* extra, glanced for a moment out of the window of his study overlooking Gramercy Park and then recorded the following entries in his private diary:[1]

October 11. Today will long be had in bitter remembrance by many. Those to whom its sad news announced no personal calamity and private grief will not soon forget the general mournful excitement and agitation that stopped all the workings of Wall Street this morning and kept brokers and lawyers and business men of all sorts around the newspaper offices and telegraphs all day long.

There was no serious feeling of uneasiness about the *Arctic* yesterday. It was taken for granted that she had put back in consequence of the breaking of a shaft or some such accident. I was at the Novelty Works yesterday afternoon . . . and talked of the missing steamer with Horatio Allen. He 'wasn't anxious,' there couldn't have been anything serious the matter, unless possibly fire, and that was not very likely. There would be news by the Cunard steamer. I was waked this morning by the voices of the newsboys, something about 'the *Arctic* and four hundred lives,' and sent out at once for the extra.

What a chill that proclamation must have sent into scores of households! How many people sprang up at the sound of that half-inarticulate nasal cry, and hurried off to get the paper and refused to entertain the idea that they had heard the announcement aright, and paid their sixpences and unfolded their purchase in desperate haste, and saw the terrible truth in print! Allen, I. G. Pearson, James Brown, Woodruff—to those households and many more it was the voice of death.

And then Mr. Strong proceeded to summarize the grim news received up to that point on the basis of stories obtained from the first group of survivors, eighteen of them, that the night before had been brought into New York on the pilot boat *Christian Berg*.[2] 'It is a sickening business,'

* The following article is an expanded version with documentation of an account of the *Arctic* disaster originally published in the Newport News, Va., *Daily Press*. A still further abridged version was circulated by the Associated Press for its subscribers on the same date, 26 September 1954.

[1] Allan Nevins and Milton Halsey Thomas, editors, *The Diary of George Templeton Strong, 1835-1875* (4 vols., New York, 1952), II, 186-192. Hereafter cited as *Strong Diary*.

[2] Four passengers and 26 crew in the lifeboat commanded by Third Mate Francis Dorian, plus one crewman on a raft were picked up by the bark *Huron*. Fourteen continued to Quebec in *Huron*

he wrote. And before the week was out, he had occasion to record more of a tragedy which for its day ranks with *Titanic* and *Lusitania* as one of the North Atlantic's major disasters.

'Captain Luce . . . was left with inadequate support. . . . There is a very unpleasant disproportion between the number of the crew and of the passengers known to have been saved. . . .' And finally, 'The passengers, abandoned on the quarterdeck . . . behaved well and met death with dignity. There were no outcries or lamentations.'[3]

* * *

There was only a slight shock, nothing in the least alarming, but as George F. Allen passed through the dining saloon of the steamer *Arctic* on his way to the deck to see what it was all about, something prompted him to pick up a cold fowl from the table set for the midday meal, to wrap it in a napkin and stuff it in his pocket.

This premonition may have saved his life as well as that of *Arctic*'s master, Captain James C. Luce, and a young German passenger, Ferdinand Keyn. This gave Mr. Allen small satisfaction, however, for when he was finally rescued after clinging to a piece of the steamer's paddle box for almost forty-eight hours and ultimately got back to his home in New York, he was described as looking 'almost like a wild man,' and kept crying, 'Why am I here, why am I here! *Why* was I saved when all the rest were lost![4]

The 'rest' included George Allen's wife Grace Brown Allen, a daughter of James Brown, president of the Collins Line, and their year-old son, Herbert. Also in the family party was a brother-in-law and his wife and infant daughter, and an unmarried sister-in-law, all of whom were returning from England on *Arctic* a hundred years ago when on 27 September 1854 the fatal collision occurred. Of a total of nearly four hundred people on board the ship, only eighty-six or eighty-seven were saved and of that whole company there was not one woman or child. Decency and honor suffered a calamitous setback in as tragic a drama as the Atlantic has ever witnessed. First the firemen and engineers and then the seamen pre-empted the insufficient lifeboats endeavoring to save them-

while the rest were transferred at sea to the ship *Lebanon* for New York. All but Dorian, who remained on *Lebanon* to assist her captain, were landed by the Sandy Hook pilot boat *Christian Berg*, No. 16, arriving Tuesday, 10 October, *Lebanon* docking the next afternoon.

[3] *Strong Diary*, op. cit.

[4] Mary Elizabeth Brown (Mrs. John Crosby Brown), 'Fragmentary Reminiscences of the Loss of the *Arctic*,' typewritten Ms. circa 1912. Various letters, excerpts from contemporary accounts compiled by various hands, and other matter assembled by the daughter-in-law of James Brown, Collins Line president, shortly after the loss of *Titanic* in 1912. Ninety-five-page typescript in the author's possession. Hereafter cited as Brown Memoirs.

selves and a few of the more agile male passengers and leaving the weaker and more deserving of help to fend for themselves in the frigid waters off Newfoundland.

It was in truth, women and children last!

* * *

The ship which suffered this terrible fate was then only four years old, was considered the pride of the United States Merchant Marine, and had already gained the nickname 'Clipper of the Seas.'[5] Launched on 28 January 1850 at the East River yard of William H. Brown, *Arctic* was the third of four wooden hull sidewheel steamships of the New York and Liverpool United States Mail Steamship Company, America's proud challenge to the ten-year-old British Cunard Line for supremacy on the Western Ocean. The president of the line was James Brown, a partner in the New York banking house of Brown Brothers and Company, but its dynamic driving force was in the person of Edward K. Collins, a man of boundless energy and ability, well experienced in maritime affairs from his prior management of the Dramatic Line of American sailing packets. Quite properly then, the new steamship line inaugurated in 1847 was seldom referred to otherwise than as the Collins Line.

The ships which entered service three years later, *Atlantic, Pacific, Arctic,* and *Baltic,* were designed by the master ship designer George Steers whose famous schooner yacht *America,* of affectionate memory, defeated the squadron of British yachts in the classic race around the Isle of Wight in 1851. The steamers were the latest word in comfort and dependability and introduced such novel features as straight stems and a reduced sail plan in a period when major dependence on sail was considered requisite for all ocean-going vessels.[6] They were also intended to show the British a thing or two, which they did.

Encouraged at first by Government mail contracts, speed records commenced to topple as the Collins liners began to hit their stride. In May 1851 *Pacific* lowered the eastbound passage to 9 days, 20 hours, 26 minutes, the first time the Western Ocean had been crossed in less than ten

[5] There are numerous contemporary descriptions of the Collins Line ships. Much of the following material has been taken from Charles B. Stuart, *The Naval and Mail Steamers of the United States* (New York, 1853), 'The Collins Line,' 115-129, frontispiece taken from a daguerreotype of *Arctic,* plates 20, 21, 23 showing engine and boiler plans.

See also *Hunt's Merchants Magazine,* XXIV (1851), 126-127.

The Collins Line and related subjects is the subject of two excellent unpublished theses: John G. Dow, 'The Collins Line,' New York: Columbia University M.A. Thesis, December 1937 (Chapt. V, The *Arctic,* 64-71); and Walter Lord, 'The Rise and Fall of the Collins Line,' Princeton, N. J.: Princeton Senior Thesis, 1939. Hereafter cited as Dow Thesis and Lord Thesis.

[6] W. Mack Angas, *Rivalry on the Atlantic* (New York, 1939), 44-45; David B. Tyler, *Steam Conquers the Atlantic* (New York, 1939), 181 ff.

days. Then, in August 1852, *Baltic* made a westbound record of 9 days, 13 hours that withstood all challengers for a dozen years. And she was the last American liner to hold the Blue Ribbon of the Atlantic for a full century, for not until the present giant *United States* came out in 1952 to break both east and westbound records did the American flag fly once more supreme on the Atlantic sea lanes.[7]

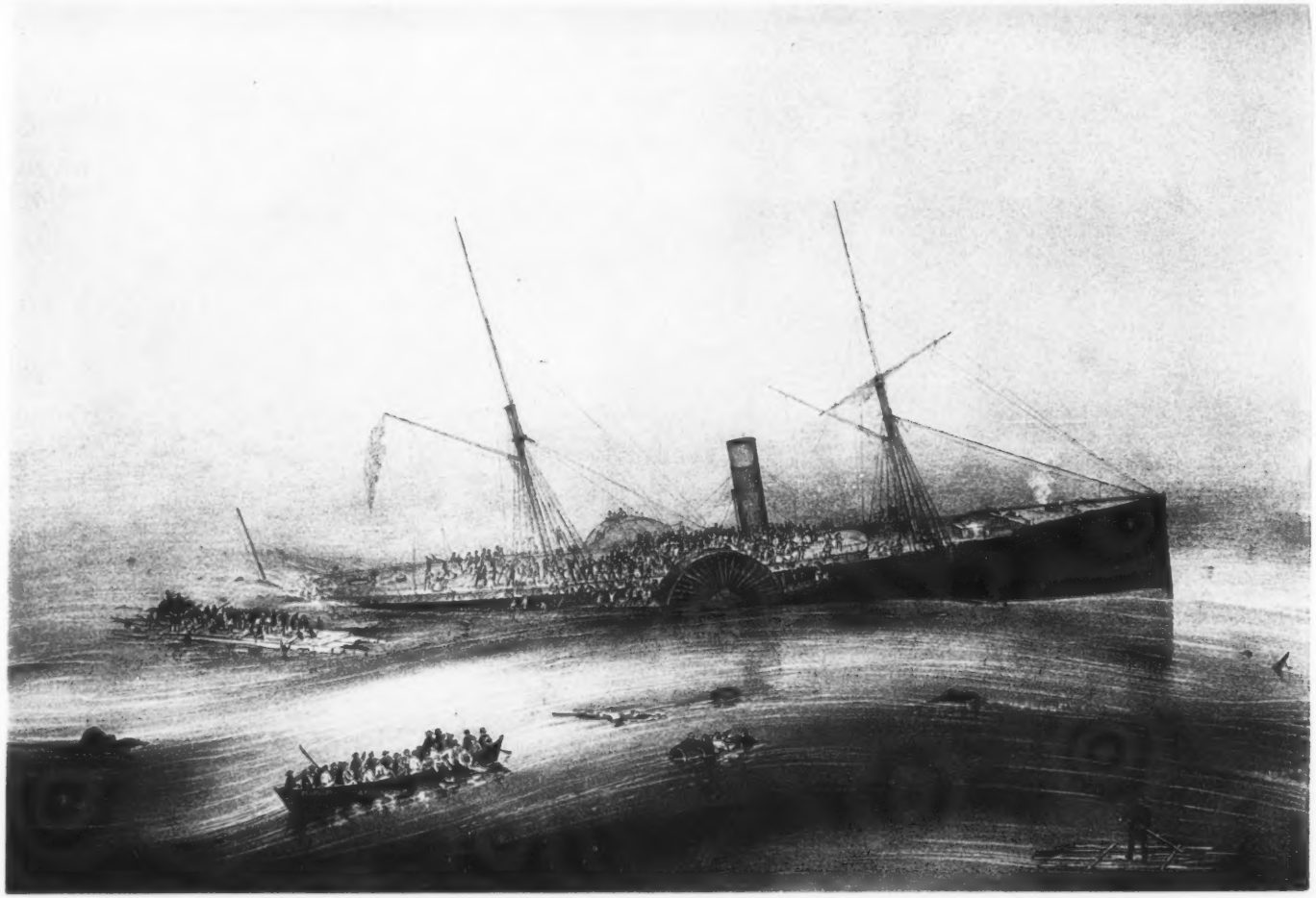
But it was *Arctic,* record breaker for an eastbound crossing in February 1852, that was considered the best of the Collins liners, all of which were making speedier passages than the Cunarders on almost every trip. *Arctic,* small by modern standards for an Atlantic queen, was 284 feet long on deck, 277 feet, 3 inches long on the keel, 46 feet beam which increased to 72 feet across the half-moon-shaped paddle boxes which, like packs on a burro, projected out on either side and covered the 35-foot, 6-inch diameter paddle wheels. Each wheel had 36 floats, 12 feet wide by 2 feet deep, and at normal draft they dipped 7 feet.

The wheels were turned by two side-lever beam engines of 1,000 aggregate horsepower built by the firm of Stillman, Allen and Company Novelty Iron Works of which George F. Allen, then a passenger on *Arctic,* was a partner. The engines, the latest word in marine power plants, were of 95-inch cylinder diameter, by 10-foot stroke of piston and they were placed side by side low in the bottom of the ship. Power was transferred directly to the paddle shaft by an arrangement of cross heads, side rods, side lever beams (whose function paralleled that of the better known walking beam), and connecting rods.[8]

Steam was delivered at a normal pressure of 17 pounds per square inch and came from four double-riveted iron tubular boilers designed by U. S. Navy Engineer John Faron. These were 23 feet long, two were 14 feet wide and the other two 15 feet wide, by 14 feet high in which salt water was evaporated in some 5,624 tubes. Each boiler had a double row of furnaces, one a few feet above the other, with eight cast-iron fire doors in the boiler ends. Uptakes conveyed combustion gases into a single large black smokestack, the top of which was some 75 feet above the lower grates and provided excellent natural draft. These hungry furnaces consumed about 85 tons of anthracite a day to maintain a cruising speed of 13 knots, requiring the exertions of 10 engineers and assistants, 24 firemen and 24 coal passers.

[7] Angas, op. cit., gives a valuable table, pp. x-xv, 'Fast Passages Across the North Atlantic.' *United States'* record-breaking maiden voyage, 3-6 July 1952, was at an average speed of 35.59 knots, contrasting with 13-plus knots for *Arctic's* February 1852 New York-Liverpool crossing.

[8] A good description of side lever engines is given in Dow Thesis, pp. 20-21, quoting from Victor Beaumont in *Tredgold's Steam Navigation* (London, 1851), II, part 1, 26-32.



'Wreck of the U.S.M. Steam Ship *Arctic*'

From the lithograph by N. Currier, 1854, after a sketch by James Smith of Jackson, Miss., a passenger on board *Arctic*.

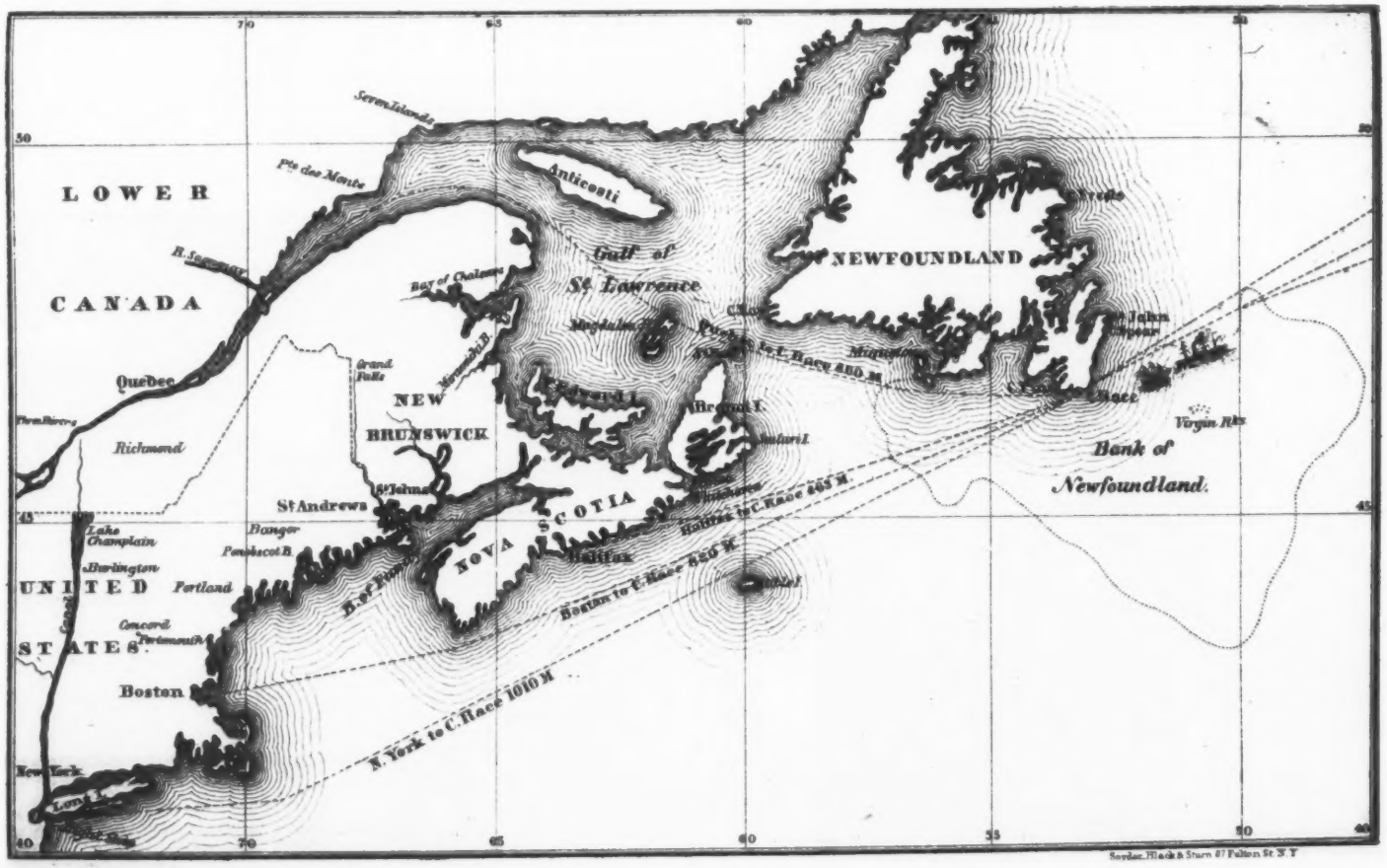
From the Collection of The Mariners' Museum

PLATE 25

'The Signal Gun of Distress on the Arctic'

From the engraving by Henry Howe, 1853, an illustration in *Life and Death on the Ocean* (New York, 1860). Stewart Holland is at left firing the signal gun. Captain Luce with his crippled son clinging to him is in the center, and third officer Francis Dorian is at right getting a spar for the raft. Passengers praying for help are in the background.

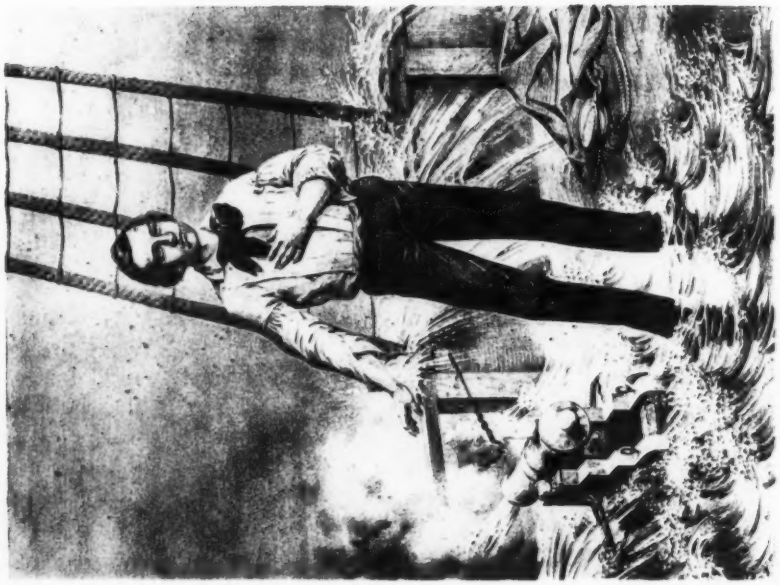
Courtesy of The Mariners' Museum



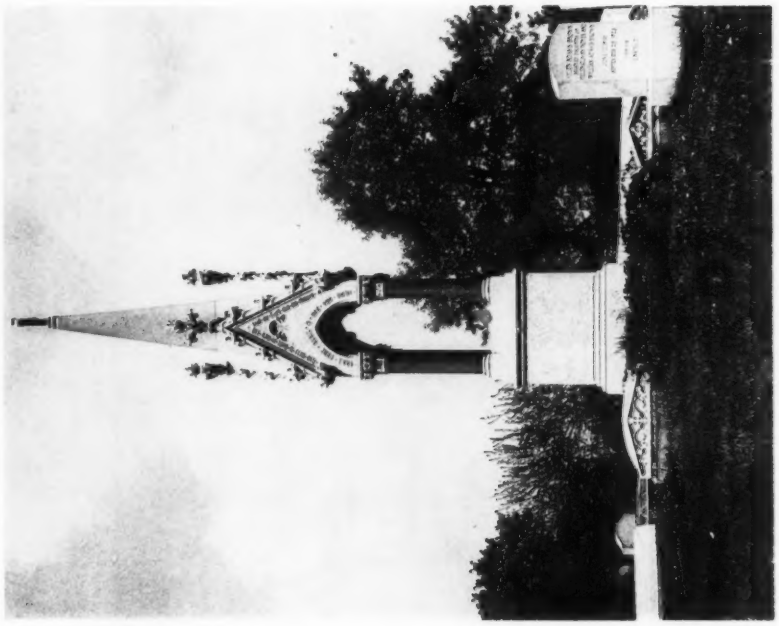
A chart showing the position of the collision off Cape Race reproduced in *The Nautical Magazine* (New York: Griffiths & Bates), November 1854, illustrating an article entitled 'Loss of the *Arctic*.'

Courtesy of The Mariners' Museum

PLATE 27



'The Last Gun of the Arctic'
From the lithograph by N. Currier, 1855. The portrait of Stewart Holland from a daguerreotype.
From the Collection of The Mariners' Museum



Steamship *Arctic* monument, Greenwood Cemetery, Brooklyn, N. Y., erected by James Brown of New York as a memorial to his six children and grandchildren lost at sea on *Arctic*, 27 September 1854.

At full complement the crew proper included 36 men, a master, four deck officers, purser, surgeon, no less than 9 cooks and 29 stewards and messmen—a total of about 140 people.[9]

But if the engines were superior and the seasoned oak hull with its diagonal iron rods was staunch, it was the interior fittings that made *Arctic* and her sisters the talk of two continents. Even a squeamish passenger crossing on *Arctic* in the early spring of 1852 confessed in an account of the trip published in *Harper's* a few months later that 'our ship rises and plunges over these vast waves with much grandeur. It is majestically sickening, sublimely nauseating. . . .'[10]

'But, never did there float upon the ocean a more magnificent palace,' he continued, describing the main cabin with its carcel lamps, walls of highly polished satin and rosewood and 'magnificent mirrors, stained glass, silver plate, costly carpets, marble centre tables and pier tables, luxurious sofas and arm chairs and a profusion of rich gilding [which] give an air of almost Oriental magnificence to a room 100 feet in length, 25 in breadth. When this saloon is brilliantly lighted in the evening, it is gorgeous in the extreme.'[11]

Only ten years before, Charles Dickens had crossed on the first Cunarder, *Britannia,* and complained bitterly of the bleak saloon and the tiny cabin assigned to him with its hard and narrow shelf-like bunks.[12] But on *Arctic* 'the staterooms are really rooms, provided with every comfort.' And some had 'large double beds with French bedsteads and rich curtains.'[13]

All of which was very fine, but of not much use to a ship so soon doomed to sink beneath the waves taking more than three hundred souls with her! One is inclined to agree with Congressman Barry of Mississippi who remarked, 'If they had spent in lifeboats for that vessel the money which they spent in gingerbread ornaments and decorations, there might have been hundreds of valuable lives saved.'[14]

It remained for the Rev. Henry Ward Beecher to pronounce a final judgment on the poor *Arctic.* Beecher, then at the full flood of oratorical triumph and before the luster of his reputation had been tarnished by his subsequent extracurricular adventures with Mrs. Tilton and others,

[9] Varying numbers from 130 to 165 are given as *Arctic*'s crew complement. The names of 139 are given in the New York *Weekly Herald,* 14 October 1854. This is probably close to the number on board for her last voyage. Captain Luce said he had 'about' 150 crew.

[10] John S. C. Abbot, 'Ocean Life,' *Harper's New Monthly Magazine,* V (June, 1852), 61-66.

[11] Ibid.

[12] Charles Dickens, *American Notes for General Circulation* (London, 1842), 17.

[13] Abbot, op. cit.

[14] Congressional Globe, 33rd Congress, second session, p. 781, quoted in Dow Thesis, pp. 82-83.

stated at an impassioned sermon at his Church of the Pilgrims in Brooklyn on 15 October that 'Death was the pilot that steered the craft, and none knew it. He neither revealed his presence nor whispered his errand.'[15]

And he went on, 'In the morning the waiters served the titled and rich. In the evening the lusty strength of the engineer was a greater title than money or coronets.'

* * *

The good ship *Arctic* left Liverpool for New York Wednesday, 20 September 1854, with a full crew and more than 250 passengers. 'Even the Ancients, endeavoring with the imagination to form a craft worthy of Neptune, their god of the Ocean, never contrived a car so magnificent as this to be driven one thousand steeds in hand.'[16]

Among the passengers were many of wealth and distinction, for the Collins Line ships could command the cream of transatlantic travelers. Among these were the wife, son and daughter of Mr. Collins as well as his brother-in-law and his wife. A member of French royalty in the person of the Duc de Gramont was on board, as well as the seven members of the Brown family and many others. Captain James C. Luce, a great favorite with all, had with him his eight-year-old crippled son who had gone along for the benefit of the sea voyage.[17]

There was a pleasant informality to a transoceanic voyage a century ago, before cruise directors and other bothersome persons had come into being and when the passengers had more of a feeling of participation in the shipboard routine. And, according to the *Harper's* writer, appetites whetted by sea air were well taken care of with five scheduled meals a day: breakfast at 8, lunch at noon, dinner at 3:30 P.M. 'very sumptuously,' tea at 7, and supper at 10.[18]

After a week at sea in reasonably good weather, *Arctic* was on the Grand Banks and all hands were looking forward without apprehension to arrival at New York on 30 September, three days later. Wednesday, 27 September was calm and hazy with occasional patches of low-lying fog, but as Captain Luce testified later that 'generally objects being [*sic,* were]

15 Complete text of the Beecher sermon is quoted in Henry Howe, *Life and Death on the Ocean: A Collection of Extraordinary Adventures* (New York, 1860), 'Destruction of the Ocean Steamer *Arctic,*' 323-340. Beecher's text was the 46th Psalm: 'God is our refuge and strength, a very present help in time of trouble.' Excerpts from the sermon given in Dow Thesis, p. 71.

16 Abbot, op. cit.

17 Angas, op. cit., Chapt. V, 'The End of the Arctic,' gives a very good account of the disaster, pp. 49-68.

18 Abbot, op. cit.

perceptible at intervals of one-half or three-quarters of a mile.'[19] In foggy weather it was customary for a sailor to toot on a tin horn from the forecastle head (steam whistles not then having come into general use) but this was not considered necessary on this fateful day.

It was clear enough at noon for Captain Luce to take his observations for latitude, an operation which experienced travelers watched with interest, for it would be on the basis of this calculation that the midday position would be fixed, the day's run computed and the winner of the pool announced. After taking the sun's altitude, the captain retired to the chart room to work out the ship's position, the passengers proceeding to the dining saloon for lunch.

Only a matter of minutes later came the sudden alarmed cry from the lookout in the bow. Immediately the officer of the deck gave the order 'hard starboard,' but it was too late to avert a collision with a propeller steamer proceeding under full sail which loomed out of the mist. Then, in the captain's own words:

> I rushed on deck and just got out when I felt a crash forward and at the same moment saw a strange steamer under the starboard bow. In another moment she struck against the guards of the *Arctic* and passed astern of us. The bows of the strange ship appeared to be cut off literally for about ten feet and seeing that in all probability she must sink in a few minutes, after taking a hasty glance at our own ship and believing that we were comparatively uninjured, my first impulse was to try to save the lives of those on board the stranger.[20]

Obeying his humanitarian instinct, Captain Luce immediately ordered two of *Arctic*'s lifeboats lowered. In the first, the starboard guard boat, went his chief officer, Robert J. Gourlay, and six seamen. But the captain changed his mind and cancelled the order to lower the other boat when he heard that things were not at all well with *Arctic*. Instead he sent his second mate, William Baahlam, to have a more thorough look at his own ship's damage.[21]

Although the name and nationality of the ship with which *Arctic* had

[19] Captain Luce wrote to Mr. E. K. Collins from Quebec, 14 October. The letter was telegraphed to New York and appeared in contemporary newspapers. It was quoted in full in the *Nautical Magazine*, I (November 1855), 105-111, 'Loss of the *Arctic*.' It also appears in full in Angas, op. cit., 61-68. Hereafter cited as Luce Letter. *After* the collision some witnesses described the fog as 'so thick that nothing could be seen 50 yards off.' Passenger James Smith, however, stated that he was 'astonished and alarmed' that the ship was 'going at full speed, without any alarm bell, steam whistle, or other signal' in weather 'so thick that I fancied not more than three or four ship's lengths ahead could be seen.' Smith statement in Quebec *Gazette*, 17 October 1854, and in Howe, op. cit., 328-334.

[20] Luce Letter, op. cit.

[21] Statements of 15-odd survivors, both officers, passengers and crew, were published in New York *Weekly Herald*, 14 October 1854. Hereafter cited as Statement of person concerned, here Baalham statement.

collided could not then be determined, it could be seen that she was a bark-rigged iron propeller with black hull, salmon-colored bottom, lead-colored poop and boats, and a black smokestack. It was first surmised that she was the Montreal-Liverpool packet *Charity*.[22] Actually she was the 200-ton French screw steamer *Vesta* belonging to the firm of Hernaoux & Cie of Dieppe which was sent twice a year to the island of Miquelon with supplies for the fishing colony there.[23] At that moment she was returning to France with a crew of fifty and 147 fishermen passengers on board. *Vesta* had watertight bulkheads and her internal compartmentation proved her salvation for, despite the appalling damage she sustained, she was able to stay afloat. The far larger and seemingly uninjured *Arctic* had received mortal wounds.

Meanwhile it could be plainly seen that bedlam had broken loose on board the other ship with people rushing about jabbering excitedly as a pair of lifeboats was being hastily lowered. *Arctic* having come to a dead stop, Captain Luce signaled for slow speed ahead and twice slowly circled the stricken vessel as Gourlay's lifeboat was rowed across to her. Her bows appeared completely cut away as far aft as the fore rigging and there was a terrible tangle of spars and sails trailing in the water with the foremast down.

* * *

Below in *Arctic*'s dimly lit engine room not even a tremor of the collision had been felt and the first indication the engineers on watch had of something amiss was when the annunciator clanged to 'stop' and then 'full astern.'[24] A minute or so later 'slow ahead' was ordered but it was not long before they could see through the floor gratings an ominous flow of black, oily bilgewater swirling around the engine bed plates. Chief engineer J. W. Rogers and his first assistant, John Dignon, immediately got a wrench and opened the bilge injection. This allowed the big jet condensers of the main engines to suck water from the bilges instead of through the usual sea chests. This in effect served as a giant auxiliary pump for no more boiler feed water would be drawn in through the usual intakes in the bottom of the ship. At the same time the Worthington bilge pumps were set in operation but it was apparent from the first that the flood was gaining. Mr. Rogers knew full well what that meant as he was later to demonstrate.

When the engine was again stopped, the bilge injectors became in-

22 George H. Burns, passenger, statement.

23 New York *Weekly Herald;* Tyler, op. cit., p. 218, from New York *Daily Tribune,* 14 October 1854.

24 Thomas Brennan, oiler, statement.

operative and the water gained faster. It was not long before it was sloshing at the bottom of the iron deck plates that made up the fire-room floor. Rogers went to report to the captain who meanwhile had heard from Second Mate Baalham that the water was rushing in through several holes in *Arctic*'s bow. The largest of these was five and a half feet long by a foot and a half wide and it was in the copper sheathing several feet below the waterline. Through it a thousand gallons a second were cascading into *Arctic*'s uncompartmented hull.[25]

Immediately Captain Luce ordered a sail passed over the bow and around the side so as to cover the leaks, but a large portion of the other steamer's iron stem, plus her broken iron anchor stock was wedged in the holes making it impossible to get a snug fit. Carpenter George Baily then went over the side in a boatswain's chair to try to stuff pillows and mattresses which were passed down to him into the holes, but by this time *Arctic* was down by the head. Even though passengers were mustered on the port quarterdeck and anchors, chains, and all other heavy objects on the bow were thrown overboard, not sufficient lift or list to port could be achieved to make getting at the holes any easier.

Meanwhile Boatswain Thomas Wilde's attempts to reach them from below were equally futile as the water was over the cargo.

All this had been the work of only a comparatively few minutes. Captain Luce was now faced with as hard a decision as ever confronted a ship master. All things considered, he decided that *Arctic*'s major chance for salvation consisted in making a dash for land in a desperate race against time. To attempt to stop the leaks seemed futile but with the ship under way, the bilge injectors could pump a lot of water. Assisted by the Worthington steam pumps and the four hand deck pumps, possibly *Arctic* could be kept afloat long enough to reach Cape Race, estimated 50 miles distant[26]—a matter of but a few minutes' flight to a modern jet plane—an eternity to a wallowing side-wheel steamer struggling like a spent swimmer.

Meanwhile whisps of fog shrouded the water. Already Gourlay's boat and the other steamer had disappeared. Probably she had already sunk thought Captain Luce as he set the course northwest by west and rang up full speed ahead for *Arctic*.

'I was compelled to leave the boat with the First Officer and his crew

[25] Luce Letter, corroborated by numerous other statements.

[26] Captain Luce evidently had not completed his noon fix calculation at the time of the collision. Position of the ship on the previous day had been 48° 39′ N. latitude, by 45° 27′ W. longitude. The ship was estimated to have run 310 miles from the fix on the 26th to the time of collision on the 27th. George Burns statement.

to take care of themselves,' he reported.[27] But he did not then worry for they were in a well-found lifeboat, Francis patent metallic type, and all were competent seamen.

Arctic had only just commenced her futile dash when a fearful scream rent the air. Suddenly out of the mist dead ahead appeared one of the two lifeboats launched by the strange steamer. There was no time to stop or alter course. The boat and all of the dozen people in it save one, who managed to catch hold of a rope and pull himself to safety, were broken to atoms under one of *Arctic*'s paddle wheels. But on she went. No time or point in trying to stop to recover bodies for every revolution brought *Arctic* closer to shore and possible rescue. The survivor, a fisherman named François Gajoick, a French Canadian, was too excited to give a coherent account of the ship he had been on board although he did reveal her nationality.[28]

Down in *Arctic*'s murky stokehold the cold sea water inched higher and higher. With increasing difficulty the perspiring stokers fed the furnaces. But soon the water had reached the ash pits and mounted to the bottom grates. Then, with an ominous hiss, one by one all the lower fires were drowned out. Immediately steam production was cut in half and now it was no longer possible to get dry coal to the upper furnaces. No point in drowning like rats in a hole. The firemen went topsides to look after their own skins.

Meanwhile, in the engine room unattended, the two sets of side levers sloshed and splashed at their work and a large part of the dwindling power of the paddle wheels was spent in ineffectual churning since the paddle buckets were so deeply immersed. Then came the inevitable end. With a protracted sigh the upper fires went out. There were two, maybe three more slow, labored turns of the paddles. *Arctic* stopped. The Worthington pumps stopped. The ship's doom was sealed.

* * *

About an hour had passed since the collision, and in her futile dash for shore *Arctic* had made good only less than a dozen miles—too few to make any material difference. Captain Luce's race against time was lost.

While the ship was still under way, the captain made plans for saving as many women and children as possible in the five remaining lifeboats —boats which even carefully and properly loaded could not have taken

[27] Luce Letter.

[28] Capt. Paul F. Grann, passenger, statement; M. Dupasseur, passenger, statement. The Quebec *Mercury*, 14 Oct. 1854, gave his name as Jogoret.

even half of *Arctic*'s passengers and crew.[29] For the first hour a semblance of order was maintained even though it was reported that the firemen broke into the 'spirit' room to bolster their outlook.[30] The hand pumps were worked by volunteers, but once the fires began going out the situation materially deteriorated as fear-crazed men stalked the decks.

Captain Luce later reported this dreadful situation with seemingly a minimum of resentment at the criminal perpetrators:[31]

> Finding that the leaks gained upon us very fast notwithstanding all our most powerful effort to keep her free, I resolved to get the boats ready and have as many ladies and children placed in them as they could carry. But no sooner had the attempt been made than the firemen and others rushed into them in spite of all opposition.
>
> Seeing this state of things, I ordered the boat astern to be kept in readiness until order could be restored. To my dismay I saw the rope in the bow had been cut and they soon disappeared in the fog. Another boat was broken down by persons rushing at the davits by which many were precipitated into the sea.

This happened while Captain Luce was busy on the other side of the ship getting the starboard guard boat ready to launch. But a passenger who observed the dreadful scene recounted it as follows:[32]

> The fourth boat was then ordered to be lowered, but before letting it down to the water, the passengers were placed in it to secure it against the seizure of the ship's crew. Twenty-five passengers, of whom eighteen were ladies, and among them Mrs. Collins,[33] were placed in it, when one rope at the stern end of the boat gave way, hanging it by the bows and precipitating all into the ocean except two men [one of them was Thomas Stinson, officers' steward][34] and Mrs. Craig, who clung to the boat. The lady was again taken on board the ship, and the boat with the two men in it, was immediately put afloat. As soon as it was on the water a rush was made for it, passengers and crew together jumping from the ship, some falling in the water and others into the boat.

In this manner, all but one of *Arctic*'s remaining boats were rushed and cut adrift. The chief engineer and several of his assistants, however, preempted one of the small deck boats and a select party of fifteen made off with it. It is said that a show of knives and revolvers discouraged inter-

[29] Dow thesis, p. 20. Henderson Moore, passenger, statement. Counting only 30 per boat would have taken care of but 180 out of the almost 400 on board. Two of the six boats carried by *Arctic* were said to have capacity for 50. All were the Francis patent metallic type with air tanks.

[30] Tyler, op. cit., p. 219.

[31] Luce Letter.

[32] F. De Maeyer, passenger, statement.

[33] The fact that Mrs. Collins was in this boat was denied by George Burns who stated he gave her a life preserver and helped her put it on considerably later, only a short time before *Arctic* sank.

[34] Stinson, steward, statement.

lopers from joining them despite the fact that room could have been found for twice as many.[34a]

Survivors' testimony on the boats and how and when they left the ship is contradictory and unfortunately can not be straightened out satisfactorily at this late date.[35] Second Mate Baalham reported that the captain ordered him to take one of the boats and to drop astern to load passengers and to try to prevent it being rushed by the crew like the others. Before shoving off, Baalham had asked the captain his own plans and was bravely told that the fate of the ship was to be his. Baalham then asked if he might not take the captain's son with him, but was told that the boy would share his father's fate.[36]

But the second mate did not remain astern long as instructed. Joining forces with another boat in which were the fourth mate and the purser, they rowed away. These two boats were by no means fully loaded, for they were capable of carrying at least thirty persons each yet had only 15 in one and 29 in the other.[37] Once away from *Arctic* the loads were balanced, Baalham keeping twenty-five in his boat and transferring four to the other. By common consent, Baalham was made commander of both boats and together they contrived to reach Newfoundland and safety even though the compasses did not work properly owing to the iron in the boat hulls and they had to steer by the heave of the sea.

'I now found not a seaman or carpenter was left on board,' wrote Captain Luce.[38] 'The only officer left was Mr. Dorian, third officer, who aided me and with the assistance of many passengers who deserve the greatest praise for their coolness and energy and who did all in their power up to the last moment when the ship sank.'

However, it must have been somewhat of a relief to the captain to be rid of so many battling, cowardly men, although for the next job at hand, the making of a raft, he could well have used some experienced seamen. However, Dorian, assisted by passengers George Burns, Captain Paul F. Grann, and two or three firemen, contrived to lower some of *Arctic*'s spars over the ship's starboard side. To fasten them together properly it was necessary to have a boat, and with the utmost reluctance Captain

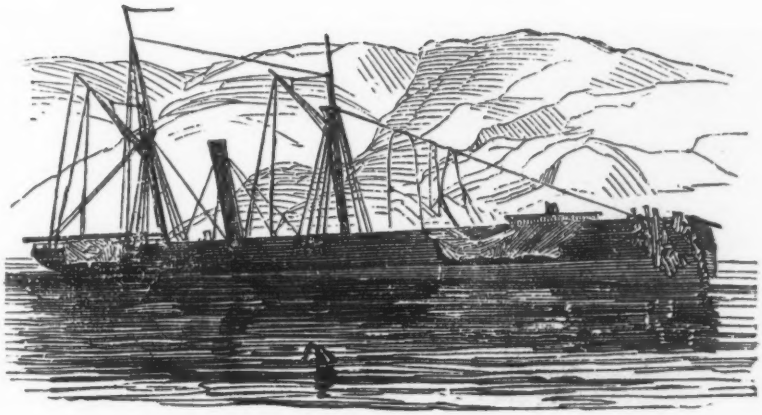
34a James Smith describes the engineers' boat sneaking off. It was launched over the bow on the pretext of getting at the leaks, but once in the water was immediately rowed away. Smith got on a little raft at this time, remaining near *Arctic* and watching operations. Smith statement.

35 Probably the most logical account was given by a French passenger, M. Dupasseur, who was saved in the second mate's boat. But the movements of one boat are completely confused. This was said to have had some women passengers on board and was under the dubious command of the butcher. Henderson Moore, passenger, statement.

36 Baalham, second mate, statement.

37 Ibid.

38 Luce Letter.



'The *Vesta*, damaged by the *Arctic*'

From a woodcut showing the iron propeller as *Vesta* appeared on arrival at St. John's, Newfoundland, in the *Illustrated London News*, 28 October 1854.

Courtesy of The Mariners' Museum

Stone carving representing the sinking steamship *Arctic* from the James Brown memorial in Greenwood Cemetery, Brooklyn, N. Y.

James Brown (1791-1877)
The two men shown on this plate were the heaviest losers in the sinking of *Arctic* off Cape Race, 27 September 1854.
From a photograph of a painting, courtesy of the late Thatcher M. Brown.

Edward Knight Collins (1802-1878)
From the oil portrait presented to The Mariners' Museum by the Maritime Association of the Port of New York.
Courtesy of The Mariners' Museum

Luce permitted the last small lifeboat put in the water, taking the precaution, however, to remove the oars and thole pins as a deterrent to someone making off with her. Captain Grann recounted this phase of the adventure as follows:[39]

> The sixth boat was on the quarter deck, and after having launched over a lot of spars to construct a raft, we launched this boat for the purpose of aiding the construction. We took the oars out of this boat, so that those who got into her should not desert us while lashing the raft.
>
> We took the main yard, two topgallant yards, some stun'sail booms, some few gratings and some water casks to construct this raft. We cut the brails from the main spencer, and also procured a coil of ratlin stuff to lash the raft. The only ones employed upon the raft, lashing it after the spars were launched, were Mr. Dorian, another young man, I think a fireman, and myself. We were on the spars and frequently in the water. While we were lashing the raft, the crew and firemen and some passengers commenced getting into the boat, climbing down over the ship's side and across the raft. This interfered very much with our work,[40] and we soon saw that it would be impossible to finish the raft as it should have been done.

Others on *Arctic* were contriving to assemble other floatable material like doors and gratings to make individual rafts. Captain Luce saw to it that the women passengers had life preservers. Despite Second Mate Baalham's statement that Mrs. Collins and her daughter had been among those drowned when the lifeboat tackle gave way some time before, these ladies were on the ship till the end.[41] George Burns offered to find a life preserver for Mrs. Collins' sixteen-year-old son, Coit Collins, but he refused, 'saying that he would not take one while any lady was left without one—a high spirited and gallant fellow this!'[42]

There were other examples of decency, courage, and outright heroism among *Arctic*'s company that gain luster by comparison. Dorian's conduct was characterized as 'noble' by many witnesses. Then there was a young engineer under instruction, Stewart Holland of Washington, who was assigned the task of firing the ship's signal gun at minute intervals. This he did for the entire time the ship floated and was seen, his face streaked with powder, going down with the ship.[43]

[39] Capt. Paul F. Grann, passenger, statement.

[40] George Burns recalls that Dorian called out to Captain Luce, 'For God's sake, Captain, clear the raft, so that we can work. I won't desert the ship while there's a timber above water.' Burns statement.

[41] George Burns statement.

[42] George Burns, additional statement. The rubber life preservers proved useless, losing air as fast as they could be inflated. The metal life preservers proved serviceable, however.

[43] Dorian, third mate, additional statement. Dorian wrote to Stewart Holland's father, Isaac Holland, 'adding my humble testimony to the merits of your noble boy. . . . His whole conduct can be accounted for by the simple word *duty* and nothing else. . . . The right side of his face was black with powder . . . [but] when he spoke his countenance seemed lighted up with something like a

The courage and 'heroic firmness' with which the women passengers faced their inevitable fate was also remarked by many survivors.

The raft was only partially completed when a premature alarm spread that *Arctic* was just about to sink. Despite the lack of oars, there was in the end the same despicable rush made for the last boat. Captain Luce almost tore the shirt off fireman Patrick Tobin's back to restrain him but to no avail. 'It was every man for himself,' said Tobin unashamedly later on, 'no more attention was paid to the captain than to any other man on board. Life was as sweet to us as life to others.'[44]

The boat was quickly filled to capacity and, taking the protesting third mate with them, it was cut adrift lest it be swamped.

Arctic's deck was already awash. A large number of people had already gotten over on the raft but there was by no means room enough for all that were left on board and many merely waited calmly for the end to come, committing themselves into the hands of God.

Ten minutes after the last lifeboat had drifted away, *Arctic*'s end came with a swift rush. At 4:45 P.M. the stern dipped under the water, the bow rose in the air baring the fatal wounds which could not be reached in time and, stern first, the ship commenced her fateful plunge. People on deck were caught up by the flood and swept helter skelter—some being dashed into the funnel. George Burns recalled one 'fearful shriek . . . still ringing in my ears.'[45] But the most terrible noise of all which drowned all other sounds was the ship's own death moans as air trapped below made its final escape through the smokestack with an all but human sounding wail. 'It was awful to hear,' commented a fireman in the third mate's lifeboat.[46]

Captain Luce, his little boy clasped in his arms and faithful to the tradition of the sea, went down with the ship. After what seemed an eternity under water, he regained the surface and,[47]

> after a brief struggling with my helpless child in my arms I again felt myself impelled downward to a great depth and before I reached the surface again I had nearly perished and had lost hold on my child. As I again struggled to the surface

quiet smile.' Holland's father replied, 'Better a thousand times he should perish in the manly discharge of his duty, than have saved a craven life by such cowardice and selfishness as marked the conduct of many of the crew.' Quoted in Henry Howe, op. cit. Nathaniel Currier issued a small folio lithograph entitled 'The Last Gun of the Arctic' in 1855. The portrait of Stewart Holland was taken from a daguerreotype. The pose and appearance of Holland is completely unrealistic, however.

44 Patrick Tobin, fireman, statement. Tobin further remarked: 'Captain Luce seemed like a man whose judgement was paralized.'

45 George Burns statement.

46 Dobbin Carnaghan, fireman, statement.

47 Luce Letter.

of the water a most awful and heart rending scene presented itself to my view; women and children struggling together amidst pieces of wreckage of every kind, calling on each other and God to assist them. Such another appalling scene may God preserve me from ever witnessing—I was in the act of trying to save my child again when a portion of the paddlebox came crashing up edgewise and just grazed my head and fell with its whole weight on the head of my darling child. In another moment I beheld him a lifeless corpse on the surface of the waves.

Captain Luce, George Allen, now separated from his wife and baby, and nine others managed to crawl up on this same piece of paddle box where, sustained only by the provisions Allen had stuffed into his pocket, they spent two nights and a day. Captain Luce described the harrowing experience as follows:[48]

One who found that all could not be supported by this piece of the paddle box let go and swam to another piece nearby. The others remained in the water until one by one they were relieved by death. We stood up to our knees in water at 45° and frequently the sea broke directly over us.

We were soon separated from our friends on other parts of the wreck and passed a terrible night, each one expecting every hour to be his last.

At last, the long wished for morning came accompanied by fog. Not a living soul but our own party to be seen of which only seven men were left. In the course of the morning we saw water casks and other things belonging to our ill fated ship but could get nothing that would afford us any relief and our raft was rapidly sinking as it absorbed water. About noon Mr. S. M. Woodruff[49] breathed his last and all the others except Mr. George F. Allen of N.Y. and myself began to suffer excruciatingly for want of water. In this respect we were very much favored although we had not a drop of fresh water on the raft. The day continued foggy except just at noon, as near as we could judge, when we had a clear horizon for about ½ hour.

Nothing could be seen but water and sky. Night came on thick and dreary and our minds were fully made up that neither of us would again see the day. Very soon three more of our suffering party were washed off and sank to rise no more leaving only Mr. Allen and myself.[50] Feeling myself very much exhausted I sat down for the first time about eight o'clock on a trunk which had providentially been found among the wreckage. In this way I slept a little through the night and became somewhat refreshed. About an hour before daylight we saw a vessel's light near us and all three of us exerted ourselves to the utmost of our strength in hailing her until we became quite exhausted. In about a quarter of an hour the light disappeared in the eastward. Soon after daylight a barque hove in sight to the northwest, the fog having lightened a little. She was apparently steering for us but in a short time

[48] Ibid.

[49] Samuel M. Woodruff, New York lawyer.

[50] Captain Luce is forgetting the young German passenger, Ferdinand Keyn, who managed to survive the ordeal along with the captain and George F. Allen. Young Keyn became nearly insane from thirst and was on the point of committing suicide when restrained by Luce and Allen. He is said to have eaten biscuits soaked in seawater to relieve his thirst and finally made a slit in his own arm with a penknife and sucked the blood. Brown Memoirs.

she seemed to have changed her course and we again were doomed to disappointment, yet I felt a hope that some of our fellow sufferers might have been seen and rescued by them.

Shortly after we had given up all hope of being discovered or rescued by the barque a ship was discovered to the eastward steering directly for us. We now watched her with intense anxiety as she approached. The wind changing caused her to alter course several points. About noon they fortunately discovered a man on a raft near them and succeeded in saving him, the second mate jumping overboard and making a rope fast to the man on the raft and he was drawn aboard. He proved to be a Frenchman who had been a passenger on board the steamer with which we had collided.[51] He informed the captain that others were near on pieces of wreckage and on going aloft he saw us and three others. We were the first to which the boat was sent and were safely aboard at 3 p.m. The next picked up was James Smith, a 2nd class passenger on the *Arctic*.[52] The others saved were five of our firemen. The ship proved to be the *Cambria* of Quebec, from Glasgow for Montreal, commanded by Captain John Russell who had commanded the British barque *Jessie Stevens*, and was rescued from the wreck of that vessel by Captain Nye of the Collins steamship *Pacific*, as will be remembered.[53]

Of Captain Russell it would be scarcely possible to say enough in his praise for the kind treatment we received from him during the time we were on board his ship.

Captain Luce had a better opportunity of finding out from the French fisherman, who had miraculously then survived double shipwreck, particulars about the vessel with which *Arctic* had collided. And on arrival at Quebec he learned of *Vesta*'s safe arrival at St. John's Newfoundland, before he and Allen started on their train trip down to New York to their homes.[54] They left Montreal 16 October, arriving at New York the next day.

* * *

Although the main raft had been put together in the best possible way under the circumstances, Captain Grann and others testified that the job was incomplete. Some seventy-two men and four women were on or

51 The French Canadian fisherman, François Gajoick, who narrowly missed death when *Vesta*'s lifeboat was run down by *Arctic*, described by James Smith as 'old and weatherbeaten.'

52 James Smith managed to survive in a metal-lined dish basket to which he lashed some wreckage. Smith's narrative of his experiences is in the Quebec *Gazette*, 17 October 1854. N. Currier's medium folio lithograph 'Wreck of the U.S.M. Steam Ship *Arctic*,' 1854, is credited as being based on a sketch by Smith, a resident of Jackson, Miss. Smith was a Scot and, having business interests on both sides of the Atlantic, was a frequent traveler. It is said that his dish basket and the shirt he waved to attract *Cambria*'s attention may be seen today at Smith and Wellstoods Bonnybridge, Scotland, stove works which he founded.

53 This event is depicted in the lithograph entitled 'The United States Mail Steam Ship *Pacific*, Capt. L. Nye, rescuing the crew of the Barque *Jesse Stevens*, December 4th, 1852, by means of Francis Metallic Life Boat during a heavy gale. . . .' Samuel Walters, Liverpool, 1853.

54 Captain Russell's report, printed in the Quebec *Mercury*, 14 October 1854, gave the particulars of sighting the various pieces of wreckage on which Captain Luce and the nine other men were clinging. He mentions that Captain Luce suffered severely and had 'contusions on several parts of the body.'

clinging to it after *Arctic* sank, but one by one they slipped off until at the end there was only one person left on it alive, Peter McCabe, a young waiter making his first trip on the Collins Line, who managed to survive a twenty-six-hour ordeal during which his body was cruelly bruised and lacerated and his legs chafed to the bone.

McCabe, at Sailors' Snug Harbor on Staten Island, New York, gave the press the following account of his ghastly experience after first going down with the ship and then finally swimming around until he came up on the raft.[55]

> Finding that I could not retain my hold of the door [to which he had first made his way] with safety, I left it and swam to a barrel which lay a few feet from me; from this I again swam to the large raft which had . . . about sevently persons clinging to it. The sea though not strong, was rough, and the waves, as they dashed over it, washed away a portion of its living freight. I shall never forget the awful scene. There we were, in the midst of the ocean, without the slightest hope of assistance, while every minute one or more of our unfortunate fellow passengers were dropping into their watery grave from sheer exhaustion. Those who had life preservers did not sink, but floated with their ghastly faces upwards, reminding those who still remained alive of the fate that awaited them.
>
> In the midst of this, thank Heaven, I never lost hope, but retained my courage to the last. One by one I saw my unfortunate companions drop off; some of them floated off and were eaten and gnawed by fishes, while others were washed under the raft and remained with me till I was rescued. I could see their faces in the openings as they were swayed to and fro by the waves, which threatened every moment to wash me off. The raft at one time was so crowded that many had to hold on by one hand. Very few words were spoken by any, and the only sound that we heard was the splash of the waters or the heavy breathing of the poor sufferers, as they tried to recover their breath after a wave had passed over them. Nearly all were submerged to their arm-pits, while a few could with great difficulty keep their heads above the surface. The women were the first to go. They were unable to stand the exposure more than three or four hours. They all fell off the raft without a word, except one poor girl who cried out in intense agony, 'Oh, my poor mother and sisters.'[56]
>
> When I was about eighteen hours on the raft there were not more than three or four left. One of these gave me what appeared to be a small map, but which I understood him to say was a sort of title deed to his property. In a few minutes after I took it, he too unloosed his hold and was added to the number that floated about the raft.
>
> I endeavored to get the paper into my pocket, but found this impossible on ac-

[55] Peter McCabe, waiter, statement.

[56] This was undoubtedly Collins Line president James Brown's 21-year-old unmarried daughter, Maria Miller Brown. A close friend of the family and of 'Millie' Brown, Charles C. Nott, was on the point of going out to Staten Island to see McCabe and make certain, but decided against it at the last moment as the only consolation the Brown family then had was that all were together at the end and that it came swiftly. The episode is described in full in a letter from Judge Nott to Mrs. John Crosby Brown, 27 May 1912. Brown Memoirs.

count of my cramped position, so I placed it between my teeth and held it there till I was overwhelmed by a wave, when I lost my hold of it, and it was washed away. Another who had an oiled silk coat on, called on me, for Heaven's sake, to assist him as his strength was rapidly failing and he must fall off if not relieved. As he was about four or five feet from me, it was difficult to reach him, but after considerable exertions I succeeded in doing so and helped him with one of my knees until I became quite faint, when I was obliged to leave him to his fate. Poor fellow, he promised me if he ever got to New York alive he would reward me well. He clung with terrible tenacity to life, but he too dropped off in his turn.

I was now left alone on the raft; not a solitary being was alive out of seventy; but still my hope continued strong.

When at length McCabe was rescued from his precarious float it was in the nick of time. 'Ten minutes more and I too would have gone,' he said, 'but Providence had mercy. . . .'[57]

As stated, the alarm ten minutes before *Arctic* began to sink caused the last lifeboat to be rushed until it had to be cut adrift lest it be swamped. In it were Third Mate Dorian, passengers George Burns and Captain Grann and two others, and twenty-six crew, most of whom like Patrick Tobin were firemen. With but six inches freeboard and no oars, Dorian had a problem on his hands. The fact that any survived is a tribute to consumate seamanship. George Burns' account was one of the first published:[58]

Numbers yet clung to the imperfectly constructed raft; but alas we could render them no aid. Our own situation was no less precarious; and cruel as it seemed we were forced to abandon them to fate. Heaven forbid that I should ever witness such another scene. We however picked up two more men and then, with an overloaded boat, without oars, tholepins, food or drink, avoiding with difficulty the fragments of the wreck, and passing many dead females, prepared for a night upon the ocean. We secured a floating pumpkin and cabbage to guard against immediate starvation, lashed a spar to the bow of our boat to keep her head to the wind and sea, and thus drifted until daylight; the night was cold and foggy, with a heavy swell, and in a cramped, drenched and half naked condition, we suffered terribly.

Without dwelling upon our miseries, alleviated much by the consciousness that we had endeavored to do our duty to our fellow men, suffice it to say that at five o'clock on the afternoon of the 28th we espied a sail and raised a handkerchief to attract attention. We were successful. With the rude substitute for oars which we had constructed during the day by lashing planks to capstan bars, with a view of attempting to gain land when the sea subsided, we pulled towards the ship. On our way we passed the remnant of the raft with one man on it apparently alive.

The ship proved to be *Huron* of St. Andrews, New Brunswick, bound for Quebec. Once the men were safely on board, Dorian, Captain Grann

[57] McCabe statement.

[58] George Burns statement.

and some of *Huron*'s crew rowed back to the raft and got there just before exhausted Peter McCabe relinquished his hold. Captain A. Wall of *Huron* hung out extra lights and fired rockets during the night in hopes of falling in with *Arctic*'s other boats, but nothing came of it. The next day they spoke the ship *Lebanon,* Captain Story, bound for New York, and eighteen of the company transferred to her, the rest electing to go on to Quebec in *Huron.* The party in *Lebanon* thus brought the first account of the wreck to *Arctic*'s home port.

* * *

Since the two lifeboats under the command of the second mate had gotten away some time before the ship sank and were by no means crowded, their voyage in to shore was far less harrowing than the others just described.

Again we turn to the account of one of the passengers, a Mr. Henderson Moore, who stated he was pulled out of the water and helped into the second mate's boat along with several others who had jumped or fallen into the water in the mad struggle to obtain places in the lifeboats.[59]

My impression is that twelve or fourteen persons were in the boat when I was first picked up. Several others who had jumped overboard were soon seen struggling in the water and as Mr. B. said that the captain had given him orders to drop astern and pick up passengers overboard, we soon drifted out of sight of the steamer. After laying on our oars a few minutes, we went towards the steamer, being directed by the sound of her bells. While approaching her we fell in with another boat containing twenty-five persons in charge of the purser. Including those picked up, our boat now contained twenty-six persons in all, under the direction of Mr. Baalham. The boats being together, put it to vote and appointed him captain of both. We had at first six oars and the purser's boat three. We broke one of our oars and gave the purser one, which left us with only four. We then headed for Cape Race, supposing it might be about 100 miles distant,[60] being guided by the wind and the sun which shone out for a few minutes. The compass taken on board failed to traverse and was of no use owing probably to the fact that Francis' life boats are made of iron. After pulling in company with the purser's boat all that night and the next day and night or until about one o'clock A.M. on the Friday following, we discovered land and which we reached about 4 P.M. the same day and landed at Broad Cove,[61] a little bay and the only one within several miles where it was considered safe to effect a landing and providentially a fisherman's hut was found near the spot where we obtained some crackers and water, the first we had tasted after leaving the ship, as we had taken neither water or food in either boat. We had lost time on Thursday afternoon by chasing two vessels, a schooner and a brig, but did not succeed in arresting their attention.

[59] Henderson Moore, passenger, statement.

[60] One hundred miles is too much. Estimates vary from 40 to 60. Captain Luce felt that *Arctic* was 50 miles from shore when the collision occurred.

[61] Twelve miles north of Cape Race.

The life boats behaved beautifully, and finer sea boats of their size probably never floated; they mounted and rode the waves in a beautiful manner.

Leaving two of their party at Broad Cove in care of the fisherman, Jack Fleming, as their legs were injured, the rest set off overland five miles for the village of Renews.

At Renews Baalham and the purser, John L. Gieb, were able to hire a small schooner and they immediately set out on a search for *Arctic*'s survivors. 'We cruised around in a strong gale of wind from the northeast but could find no trace of ship or boats,' the second mate reported.[62]

Giving up the apparently fruitless search, the whole party sailed on in the schooner to St. John's. The purser and one seaman remained there, the others taking the steamer *Merlin* for Halifax. Here they managed to secure passage on the Cunard steamship *Europa* which brought thirty-eight in to Boston, five sailors electing to remain in Nova Scotia. Those landed in Boston came down to New York by 'the cars.'

Vesta was already in port when Baalham and his associates reached St. John's.[63] Her safe arrival on 30 September, just before the weather turned bad, was a credit to the superior seamanship of Captain Duchesne. Immediately after the collision two lifeboats were launched against the orders of the French captain. One of these, as we have seen, was smashed by *Arctic*'s paddle wheel. The other returned to *Vesta*. One person was killed in the collision and the rest of the thirteen lost were either in the lifeboat or drowned by jumping overboard and attempting to swim to *Arctic*.

Once it was determined that *Vesta* would stay afloat as long as her watertight bulkhead held, Captain Duchesne ordered it carefully shored. Some one hundred and fifty mattresses, probably nearly all on board, were stuffed behind the bulkhead and fastened in place with timbers. The foremast was cut away and, after carefully licking her wounds for two days, the screw vessel set out for St. John's 'under small steam.'[64]

Initial reports received in New York credited *Vesta* with saving thirty-one of *Arctic*'s crew, but apparently there was confusion in identity for

[62] Baalham statement.

[63] Account in Newfoundland paper 4 Oct., reprinted Halifax 12 Oct., in New York *Weekly Herald* 14 Oct. *Illustrated London News*, 21 Oct. 1854, p. 393. Woodcut view of *Vesta* at St. John's in ibid., 28 Oct., p. 415.

[64] *Illustrated London News*, 21 Oct. 1854, p. 393. Details covering repairs to *Vesta* are lacking. She was, however, restored to duty and saw several more years of useful service. She is recorded purchased 11 June 1855 by Cie. Generale Maritime of Havre and she passed in 1861 to the Cie. Generale Transatlantique who disposed of her in 1864. Information from 'vieux registres Veritas' forwarded by Alan B. Deitsch from Henry de Cantelar.

this was the same number picked up by *Huron* from the third mate's boat.[65]

In addition to the search carried out by Second Mate Baalham in his chartered fishing schooner from Renews, the brigantine *Ann Eliza* owned by Warren Brothers of St. John's, sailed from the Newfoundland port on 2 October for three days 'free of charge,' by arrangement of the American consul at St. John's.[66]

However, although pieces of wreckage were sighted, as well as what was described as *Arctic*'s 'lifecar,' no more people were saved. Vanished without a trace, therefore, was the first boat to leave *Arctic* with six sailors and Chief Mate Gourlay, expressly sent by Captain Luce to aid *Vesta*. The lifeboat pre-empted by the engineers, and the lifeboat said to have contained women passengers in command of the butcher, Benjamin Van Norden, also were swallowed up by the ocean. Probably at first lost in the fog, without the help of compasses, they were unable to survive the bad weather which set in after 30 September.

In the days that followed there were rumors of others saved from the ship, but it finally boiled down to the following: third mate's boat: thirty-two; second mate's and purser's boats: forty-five; from rafts and pieces of wreckage: eleven.[67]

Curiously enough, if reports were true, an 'Enoch Arden' case developed out of the *Arctic* tragedy with the 'unexpected return to life' of a Mr. Fleury, a New Orleans merchant supposed to have been lost on the liner.[68]

'His wife, young and attractive, mourned for him,' so an account stated, 'then married the chief clerk of the late husband. Together the pair

[65] The Halifax dispatch of 12 Oct. said of *Vesta*'s arrival at St. John's, 'she had on board 31 of the *Arctic*'s crew.' Totals saved were therefore initially reported at 109 in N. Y. *Weekly Herald*, 14 Oct. 1854. They are included in the Dow Thesis, p. 69, and Tyler, op. cit., p. 217. However, no survivors being picked up are mentioned in the *Illustrated London News* account of *Vesta*'s at-sea repairs and trip in to St. John's and a dispatch from Halifax, 13 Oct., also given in the N. Y. Weekly *Times* states 'that the Newfoundland papers of as late as the 5th inst. make no mention of the ship having brought in any of the crew of the *Arctic*. It is our belief that the despatch from Halifax received yesterday afternoon, referred to the persons who were first reported as having been landed near St. John's. . . .'

[66] *Illustrated London News*, 21 Oct. 1854, p. 393.

[67] This total is given in Angas, op. cit., p. 68: 86 saved, 322 lost. Kennedy, *The History of Steam Navigation* (Liverpool, 1903) gives 87 saved of 365 on board. Captain Luce said *Arctic* had 233 passengers and 'about' 150 crew. Dow Thesis gives 106 saved, 283 lost, but freely confesses that 'reports of these totals are conflicting. . . . The U. S. Treasury report of 3 Dec. 1855 gives a total of 305 lost, but states that no investigation was ever made to establish the certainty.' Senate Doc. 2, 34th Congress, quoted in Dow, pp. 69-70. This writer has compiled a list of 83 names of persons known to have been saved. There were four officers, 57 crew and 22 passengers, plus the one fisherman from *Vesta*. Two crewmen's names appear as being saved in both second and third mate's boats. The exact number will probably never be known.

[68] *Harper's Weekly*, 25 August 1860, p. 535.

lived happily' and produced three children. Upon this scene of domestic felicity burst a letter from the first husband dated New York, 4 October 1860. It seems that he had been picked up from a piece of the wreck with five other unspecified survivors and 'being taken on board a whaler, had gone on a long voyage with her. This ship was subsequently sunk and fifteen of those aboard saved themselves upon the island from which they were taken by another whaler which was just commencing her cruise and which only returned to New York a week or two ago.'[69]

The name Fleury does not appear listed with the survivors found by *Cambria:* Captain Luce, Allen, Smith, Keyn, the French Canadian fisherman, and the five *Arctic* firemen, all of whom were clinging to pieces of wreckage. So, if true, Fleury must have been saved by some other means. In any event, his return brought about its unanticipated complications.

Other households lived in hope that the unexpected knock at the door might be a loved one returned from the sea, but none came. George Allen, for one, was never the same person after the disaster and died nine years later a broken man still mourning his wife and child.[70]

* * *

As is invariably the case after a spectacular disaster, the Monday Morning Quarterbacks came out in full force with their announcements of what should have been done. After the testimony of survivors was obtained and evaluated, the dreadful picture of cowardice and greed emerged in full detail. And when fireman Patrick Tobin told of how the captain threatened him with an ax and tried to pull him from the boat, ripping his shirt and stated 'it was every man for himself,'[71] the New York *Daily Times* editorialized, 'in view of their [the crew's] conduct, one can scarcely help deploring their escape as much as the loss of the dead.'[72]

Other editors who had revelled in the fine showing of the Collins Line ships and their quick passages, now cited the 'wicked recklessness' of speed.[73] Although Captain Luce was commended for his devotion and was embarrassed by being held up as a hero in some quarters, he was censored in others for a 'want of anticipation' in not being prepared for

69 Ibid.

70 Mary Elizabeth Brown quoted her husband John Crosby Brown (younger brother of those lost at sea) 'that the saddest part of it all was the fact they could not feel sure their dear ones had not been picked up by some passing ship, so that for many weeks every ring of the bell, even any sudden noise, filled them with hope.' George Allen was described as 'a very sad-looking gentleman with white hair.' Brown Memoirs.

71 Tobin statement.

72 N. Y. *Daily Times* editorial, 13 Oct. 1854, p. 4, quoted in Lord Thesis. 'The great point which the catastrophie established is the necessity of better crews and more rigid discipline on board our ocean steamers.'

73 N. Y. *Daily Tribune* editorial, 12 Oct. 1854, quoted in Dow Thesis, p. 70.

what happened.[74] Although the British papers tended to lay the blame to the speed of the ship being maintained in the fog, the London *Times'* summation was that 'the fact remains as at present that *Arctic* passengers were drowned through the desertion of the crew.'[75] A great deal could have been done in the four hours the ship remained afloat after the collision.

The well-known Boston shipping magnate, Robert Bennett Forbes, stated that it is 'easier, while sitting by our firesides and after the disaster, to suggest what ought to have been done.'[76] He felt, however, and Captain John Ericsson agreed with him,[77] that the water should have been blown out of the boilers so that they might have thus been used as giant flotation tanks which, they claimed, would have kept the ship from sinking. Forbes estimated a force of 284 tons buoyancy would have resulted.

Another suggestion was, since the holes were in *Arctic*'s bow, that she should have been backed toward Cape Race so that her movement through the water would not have increased but diminished the inflow through the leaks.[78]

But every suggestion ended with the crying need for better discipline. Forbes brought out the fact that the owners complained they could not get men to stay with them 'in these short voyages' and there was never enough time to drill green hands—arguments one heard voiced eighty years later after the *Morro Castle* debacle.[79] But, suffice to say, even then American seamen were better paid than any others.

Lack of morale is, therefore, hard to explain.[80]

Despite the public furor, no disciplinary action was taken against any of the survivors, probably because the worst offenders, those in the engineers' lifeboat, had already paid the penalty. But it is likely that many

[74] A few editorials took this slant. One editorial written before it was learned that Luce had been saved stated that he 'was cool and was regardless of himself, but was not energetic in command, so essential at such a crisis.' Brown Memoirs. Passenger James Smith stated that a 'system of management or concentration of effort was never commenced or applied to any one object.'

[75] London *Times*, 28 Oct. 1854, p. 7, quoted in Lord Thesis.

[76] Robert Bennett Forbes, *Remarks on Ocean Steam Navigation* (Boston, 1855). This 15-page pamphlet is devoted entirely to pertinent observations made as a result of the *Arctic* disaster: 'The terrible fate of the *Arctic* and the loss of so many valuable lives is a theme about which too much cannot be said at this juncture, while the public heart is bleeding. . . .'

[77] Angas, op. cit., p. 68.

[78] Ibid.

[79] The Ward Line passenger steamship returning from Havana, burned and stranded off Asbury Park, New Jersey, 8 Sept. 1934, with the loss of 134 lives.

[80] Forbes, *Remarks*, op. cit. Forbes felt that the abolishment of flogging as a means of punishment might have contributed to low morale among American seamen in that certain elements considered that the abolishment of this age-old procedure also relieved them of the obligation of obeying orders. The 'cat' was abolished in the U. S. Navy by act of Congress, 28 Sept. 1850. *Nautical Magazine*, I (March, 1855), 448-452.

of the surviving crew members who elected to remain in Canada did so for reasons of conscience. However, ostracism is a very severe punishment and it is said that when Mr. W. W. Gilbert 'came into New York alive and well, there was an indescribable chill which ran through the entire community.'[81]

> His story was that he had gone to secure and hold seats for them [lady members of the Brown family] in one of the boats [Baalham's] and had been carried off by the inrush of the crew. When he told that story all witnesses who might contradict it had gone down with the ship. But one of those witnesses came up and to the astonishment of the whole world, lived [George F. Allen]; and he did not confirm G's story. What he said was not made public.

Diarist George Templeton Strong confirmed that 'opinion is setting strong against the survivors who took the boats.'[82] And he said that Gilbert's apologies are 'of a man who had failed to get them seats in the omnibus as they came out of Wallack's with the crowd. [C. T.] Mitchell speaks of it being prudent to keep at a "respectful distance" from the sinking ship. A judiciously selected adjective certainly!' is Strong's ironic conclusion.

In the report of the Secretary of the Treasury in 1855 (the nearest thing to an official censure), the cause of the accident was set down as neglect of the pilot rules, but specifically which ones were not cited. An additional comment was that 'more than half the lives lost on steamboats within the last year might have been saved if a single vessel [*Arctic*] had been provided with a water-tight bulkhead.'[83]

The Collins Line suffered a heavy loss of prestige, but the monetary loss was not great. The ship had been insured for £60,000 in England and $310,000 in the United States. The cargo of dry goods and jewelry was covered by $300,000.[84]

Although their effectiveness might well be questioned as installed in an existing wooden ship, the remaining three Collins liners were given watertight bulkheads and an additional five lifeboats.[85] The editor of

[81] Gilbert, a member of the New York Stock Exchange, was reported engaged to James Brown's daughter, Millie Brown. Judge Nott's letter, op. cit. Brown Memoirs.

[82] *Strong Diary*, entry for 16 Oct. 1854, II, 191.

[83] Senate Doc. 2, 34th Congress, 1st and 2nd sessions, pp. 430, 461, quoted in Dow Thesis, p. 71. Heavy loss of life occurred in the sinking of the steamships *San Francisco* and *City of Glasgow* in 1854. *Scientific American*, 25 Nov. 1854, p. 85.

[84] N. Y. *Daily Tribune*, 12 Oct. 1854, cited in Tyler, op. cit., p. 220, and in Dow Thesis, p. 69.

[85] Tyler, p. 219; Dow Thesis, p. 71. A letter on safety at sea by Commodore M. C. Perry, USN, advocated not only ample lifeboats but that they be fully equipped with oars, masts, yards and sails and that food be provided in watertight containers. Commodore Perry recognized the necessity for every person in the crew to be assigned a disaster station and be given duties to perform. *Hunt's Merchants Magazine*, XXXII (March, 1855), 378-380; *De Bow's Review*, XVIII (March, 1855), 369-373.

the *Scientific American* noted with great satisfaction that the steam whistles he had long championed were installed on the Cunarder *Arabia* and the Collins liner *Pacific*.[86]

Following the suggestion of Robert Bennett Forbes, Lieutenant Matthew Fontaine Maury, Virginia's famous naval officer-scientist, worked out separate east- and west-bound steamer lanes crossing the Atlantic, so designed to lessen *'liabilities* by diminishing the *chances* of collision.'[87] His description of the plan ended with the statement that the separate lanes were 'not intended to relax diligence on the part of the master,' however.

Thus, although a very great deal of sadness came out of the *Arctic* tragedy, it did make a permanent mark on the improvement of safety at sea. Lifeboats enough for all, the wider acceptance of the principle of watertight compartmentation and, as far as the British were concerned, the superiority of iron over wood—all these concepts owe much to those who gave their lives on that hazy afternoon on the Western Ocean.

Oh, what a burial was here! [intoned the Reverend Mr. Beecher][88] It was an ocean grave. The mists alone shrouded the burial place. No spade prepared the grave, no sexton filled up the hollowed earth. Down, down they sank, and the quick returning waters smoothed out every ripple and left the sea as if it had not been.

Now, a century later, we salute their memory.

[86] *Scientific American,* 11 Nov. 1854, p. 69; 25 Nov. 1854, p. 85. See also John H. Morrison, *History of American Steam Navigation* (New York, 1903), p. 575.

[87] Matthew Fontaine Maury, 'Lanes for the Steamers Crossing the Atlantic,' *Nautical Magazine,* II (June, 1855), 247-256. Maury also advocated 'making steam vessels lifeboats in their construction.'

[88] Beecher sermon, 15 Oct. 1854, op. cit. See note 15.

Alexander Crosby Brown is an editor of, and a frequent contributor to THE AMERICAN NEPTUNE. *He is an authority on steamship history and has a deep interest in the* Arctic *disaster, as several members of his family were lost on that tragic occasion.*

Early Seventeenth-Century Ship Design

BY WILLIAM A. BAKER

WHEN the drawing of the lines plan was started for the proposed *Mayflower* replica to be built by Plimoth Plantation, Incorporated,[1] it was apparent that modern methods of drafting would not properly produce the characteristic shape of vessels of the period. Too many models have been built whose designers have assumed that any round and chunky looking set of lines would do. To determine and understand the methods employed by the Elizabethan shipbuilders it was necessary to survey shipbuilding data over a considerable period of time. Study showed that much of the design procedure was closely allied with the construction and, generally speaking, ships' lines of the period were drawn with no other tools than a straightedge and a compass. Plate 31 shows an Elizabethan shipwright and his apprentice at work on the design of a new ship.

The shape of modern ships is relatively independent of the type of structure employed. Practically any contour can be obtained through the proper use of metals, wood or other materials. The shape of the earliest watercraft was a direct result of the material employed, the first vessel being the log which some early inhabitant of this earth discovered would support him in the water while he paddled along with his hands. One can only surmise the mental processes that led to the securing together of several logs to form a raft on which families and their belongings could be transported and to the hollowing out of the first log canoe. These steps started, early in man's maritime ventures, a parallel development—slow, bulky craft for moving goods, slim, speedy ones for important services and military use, the classic 'round' ship versus the 'long' ship.

The first advance from the hollowed out log canoe came when planks were added to the sides of the canoe to increase its freeboard, thus mak-

[1] For a description of a lines plan and what it represents see Appendix.

ing it more seaworthy and enabling it to carry greater loads. The big step occurred when, needing a vessel larger than the biggest log available, man constructed the first boat entirely of planks. In the course of development such craft long maintained the double-ended shape of the log canoe but it was soon found that by varying the relation between length and breadth, the resultant vessels could be made wide and burdensome or slim and speedy.

There followed centuries of slow progress during which the shape of the ends changed through the requirements of service or fashion, the shape of the midsection departed from the rough semicircle of the log, and decks and superstructures were added. Associated with these changes were the problems of propulsion—oars versus sails. The oar-propelled craft remained long and narrow and almost true double-enders. They were used mainly for military purposes and performed best in the Mediterranean region where voyages were relatively short; the stormy waters of the North Atlantic were very unfavorable. Generally they did carry some sail for use with favorable winds. Sails were the sole means of propulsion for the slow, plodding merchant vessels.

Hybrids in which the builders tried to combine the advantages of oar and sail propulsion were in favor from time to time. In merchant service, the rowers took up much valuable space. In order to carry a sufficient quantity of goods to be economical such vessels had to have considerable displacement which made them too unwieldy for satisfactory propulsion by oars. An exception were the great merchant galleys of Venice which carried relatively light but valuable cargoes of silks, spices, and other products from the East.

As time passed and builders gained experience, rules of thumb were formulated for the proportions of vessels for various services, for structural parts, and for various fittings. These rules were passed along from master builder to apprentice until they were finally set down in writing. Ultimately they appeared in printed form but the first really useful books did not appear until the later half of the sixteenth century. Even then many details were taken for granted. It is impossible today to comprehend some of the design procedures and to know what is meant by certain terms.

The master builders of the great Mediterranean ports took an early lead in the field of naval architecture. This was particularly true in the case of Venice which long held a monopoly on the trade with the East and had organized the famous Arsenal to build and maintain her war

fleets. Many important manuscripts describing the proportions and construction of various types of galleys, round ships, and other craft are preserved in her archives and those of other cities.[2] In England, Samuel Pepys is responsible for saving much material on ships of the Elizabethan period.

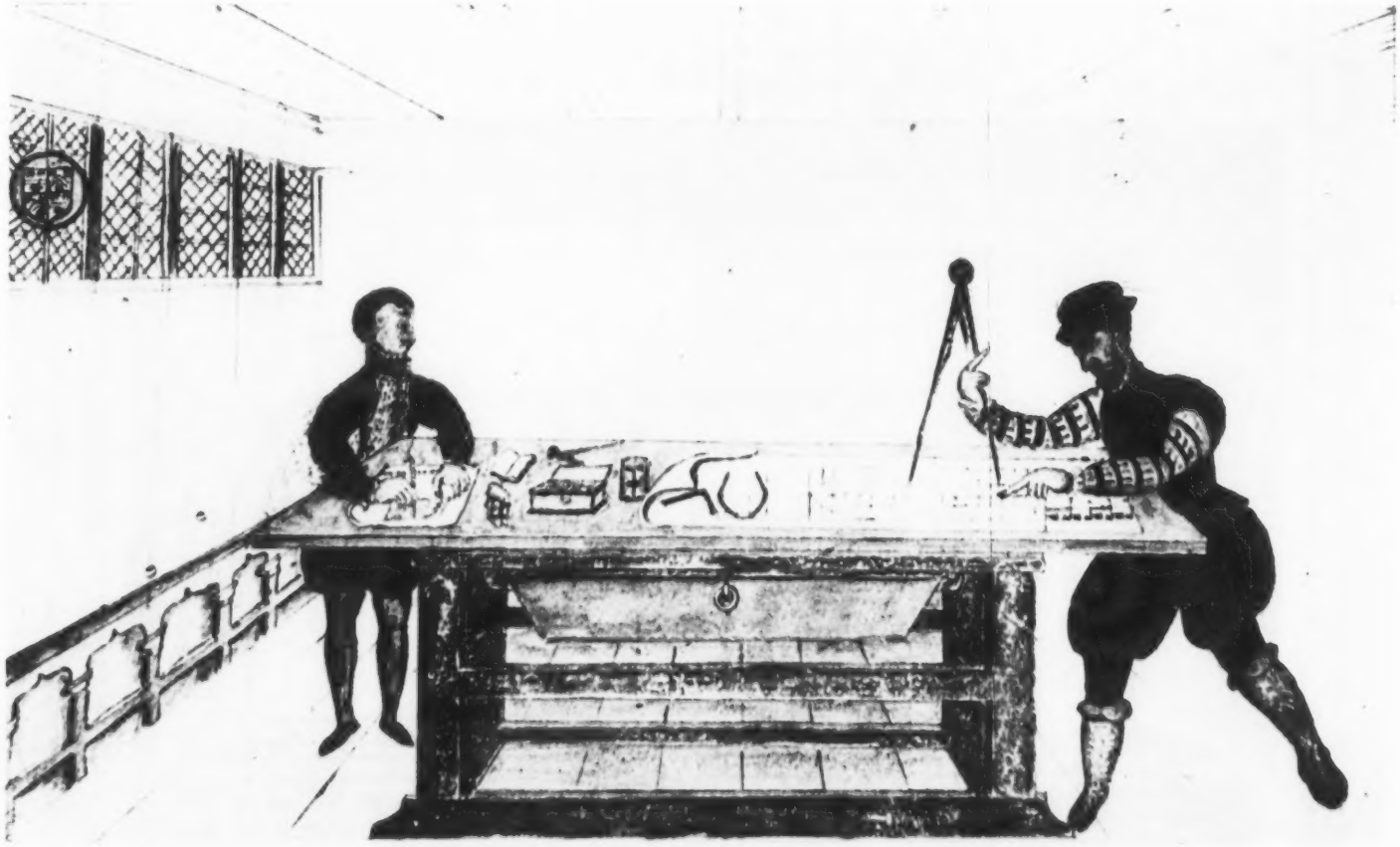
It has been said that sailing ships of 1485 differed less from sailing ships of 1785 than they did from those of 1425.[3] Hence, works of about 1450 are as early as need be considered and perhaps those of 1700 are as late as are useful. While a few of the old manuscripts are marked with definite dates, the probable period of composition of others can be determined only from the information they contain. Some may have been written in a relatively short period of time, say by a master shipwright at the instance of a patron. A few may be copies of other works, perhaps only part of a miscellaneous collection on many subjects. But it seems likely that the majority are what might be called notebooks that were compiled over a period of time. Manuscripts of this type present information obtained by the shipwright from others early in his career, data and methods developed during his working years and, finally, his theories and preferences on various subjects.

In studying such old manuscripts and early printed works and making use of the information contained therein, some caution is required in assigning certain details to definite periods. In any art or science there is much material that is carried along from year to year with little or no change and this was particularly true of wooden shipbuilding. Details of design would probably vary from builder to builder; new ships with old features could have been built at the same time as vessels of quite advanced design. Further, frequent rebuildings such as many of the ships of Queen Elizabeth I experienced probably resulted in a mixture of characteristics. All this makes it not unreasonable, when data is missing on certain features of form and construction, to survey the available material and project forward or backward in time as required.

In studying the material pertinent to the design of ships at the beginning of the seventeenth century, a Venetian manuscript dated 1444 was the earliest considered. This is a notebook on many subjects compiled by Giorgio Timbotta containing scattered items on shipbuilding that can be gathered under four headings: 'Galleys,' 'Ships,' 'Rigging,' and

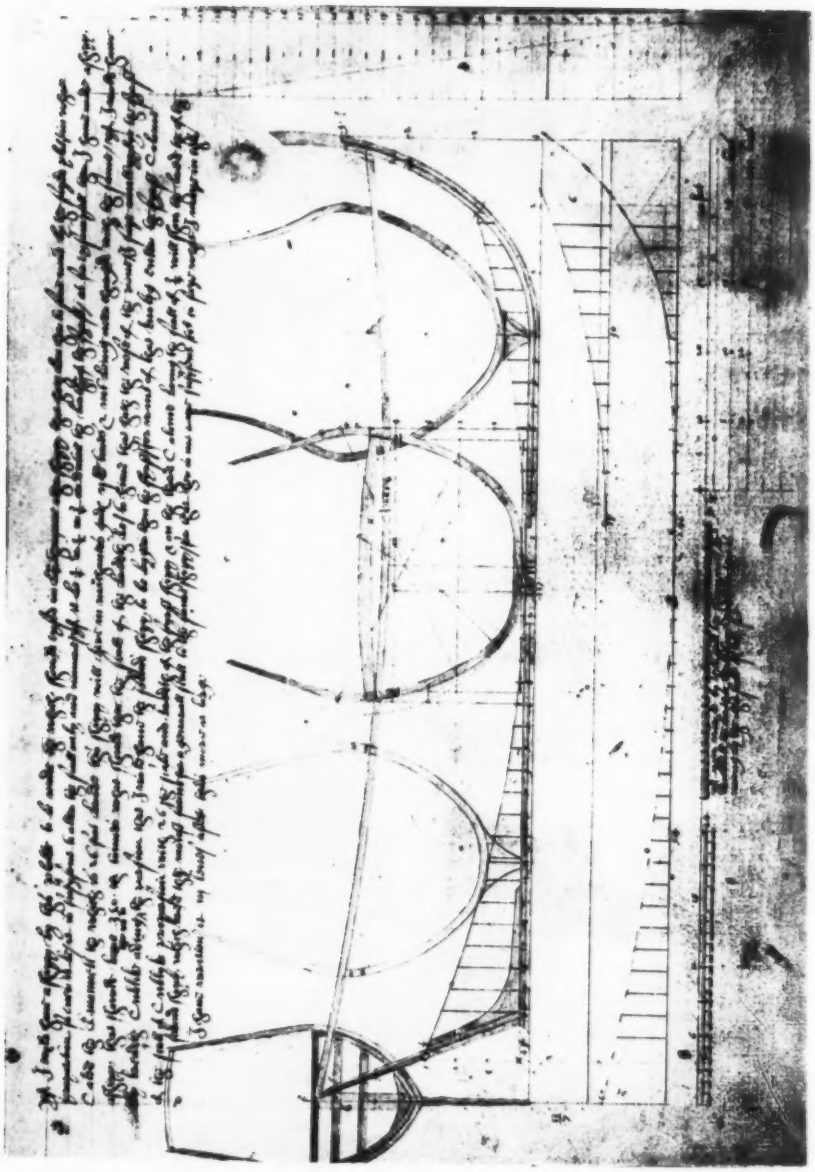
2 Frederic Chapin Lane, *Venetian Ships and Shipbuilders of the Renaissance* (Baltimore: The Johns Hopkins Press, 1934).

3 M. Oppenheim, *A History of the Administration of the Royal Navy and of Merchant Shipping in Relation to the Navy* (London and New York: John Lane, The Bodley Head, 1896), p. 40.



Elizabethan shipwrights drafting a new ship

From Pepys 2820, Magdalene College Library



Profile and sections of Elizabethan ship
From Pepys 2820, Magdalene College Library

'Sailmaking.' There are indications that some of this material was copied from notes of an earlier date but it is considered that the information applied generally to the period 1440-1450.[4]

As might be expected from a Venetian source, the design of galleys is covered in considerable detail but there are also dimensions for eight sailing ships of various sizes. For two of these, there are stem, sternpost, and midsection diagrams and outboard views showing the starboard quarter. There are also data on such items as the position of the mast step, the size of the rudder, and the dimensions of the spars.

Next in time, about a century later, is another Venetian manuscript entitled 'Instructione sul modo di fabricare galerie.' Written by Pre Theodoro de Nicolo, a foreman ship carpenter of the Arsenal, it gives details of shipbuilding practice in the middle of the sixteenth century.[5] Again the various types of galleys are described in detail. There are two new types of vessels mentioned—the oared galleon and the great galleon —and specifications are given for a merchantman indicating that Theodoro had not spent all his career in the Arsenal.

The earliest useful printed work is the *Instrucion Navthica* by Diego Garcia de Palacio published, curiously enough in Mexico, in 1587.[6] This important work is divided into four books, the first three of which, on mathematical and navigational subjects, contain little or no new material, being but compilations from other printed works. But the fourth book contains the first known printed plans of ships and also drawings showing the proper methods of making sails. In addition there is a marine dictionary, perhaps the first in any language to be published.

In 1629, the *Architecture Navalis* of Joseph Furttenbach published at Ulm, described Italian practice in the design of galleys, miscellaneous small craft, and large sailing ships. Much of this material is similar to that in the Venetian manuscripts previously mentioned. George Fournier's *Hydrographie* published in France in 1643 covering many marine subjects gives methods of drawing ships lines and for proportioning various parts. The first printed book in English dealing solely with naval architecture was Edward Bushnell's *The Compleat Shipwright* which appeared around 1665. It covers in some detail the design of a vessel of 60-foot keel length giving a sheer plan and a midsection outline.

One of the latest works of use in this study is Sir Anthony Deane's 'Doc-

[4] R. C. Anderson, 'Italian Naval Architecture about 1445,' *The Mariner's Mirror*, XI (1925), 135-163.

[5] Frederic Chapin Lane, 'Venetian Naval Architecture about 1550,' *The Mariner's Mirror*, XX (1934), 24-29.

[6] Vernon D. Tate, 'The Instrvcion Nauthica of 1587,' THE AMERICAN NEPTUNE, I (1941), 191-195.

trine of Naval Architecture,' a manuscript prepared in 1670 at the request of Pepys.[7] Deane, who lived from 1638 to 1721, served the Royal Navy as a master shipwright and a commissioner in charge of various yards and enjoyed a high professional reputation. His manuscript gives a series of plans for six different 'rates' of ships, data on items of equipment, rigging, victualing, and manning, and describes a method of drawing ships' lines.

Falling roughly in the middle of the survey range and of the utmost value to this study are the two English manuscripts mentioned in the previous discussion of the dimensions of *Mayflower*. The first of these, 'A Most Excellent Mannor for the Building of Shippes,'[8] an anonymous work of about 1600, gives several outline drawings of midsections differentiating between 'men of warr' and 'marchauntt men.' The second, from which the basic data for the form of the proposed replica was taken, was preserved by Pepys and was titled by him 'Fragments of Ancient English Shipwrightry.'[9] It is attributed to Mathew Baker, one of the master shipwrights of Queen Elizabeth I, and has been dated *circa* 1586 by English authorities. From a study of this manuscript the writer believes it to be of the notebook variety compiled over a period of time. The original author did not use all the pages for data pertaining to ships for there is much mathematical material in another hand dated 1615.

While the 'Fragments of Ancient English Shipwrightry' is written in English the spelling and letter forms are such as to make its reading something like an exèrcise in cryptography. Much of the information it contains is incomplete in many respects but some details can be clarified by reference to Deane's work. There are references to the Greeks and Venetians and one authority believes that the well-known profile of a large four-masted ship of the period represents a Mediterranean vessel rather than an English one. Yet notes on certain diagrams show that they were used in designing some of the Queen's ships, particularly *Foresight,* 1570, and *Vanguard,* 1586, hence it is a reasonable source of design data for the proposed replica.

Ships of the early seventeenth century, indeed long before and for

[7] The full title is 'Anthony Deane's Doctrine of Naval Architecture and Tables of Dimensions, Materials, Furniture and Equipment appertaining thereto. Written in the Yeare 1670 at the Instance of Samuel Pepys, Esq.,' Pepysian Library No. 2910. Some of Deane's instructions are published in Sir Westcott Abell, *The Shipwright's Trade* (Cambridge, At the University Press, 1948).

[8] Anonymous MS., 'A Most Excellent Mannor for the Building of Shippes,' Scott Collection, Institution of Naval Architects, London. By courtesy of the Institution of Naval Architects. Hereinafter referred to as the I.N.A. MS.

[9] Mathew Baker's Notebook, Pepys 2820, Magdalene College Library. Plates 31 and 32 are also from this work. By courtesy of the Master and Fellows of Magdalene College, Cambridge.

long after, had definite shape characteristics quite apart from the decorative features so apparent in old prints. The upper works were most noticeable as they tumbled home to high, narrow decks, that is, the sides sloped or curved inward from the waterline. The upper decks which carried guns were kept narrow for several reasons. The weight and recoil of the guns put a severe strain on the structure and it was difficult to obtain long beams of suitable size; joints in beams were a source of weakness.

Of great importance in the design was the shape of the largest section and its location in respect to the length of the vessel. The widest part of this section was just above the load waterline to keep the ship from heeling too far under the wind pressure on the sails. This breadth was raised towards the ends to improve seaworthiness in heavy weather by providing extra buoyancy and to give fine sections below for easy passage through the water.

The largest section was located somewhat forward of the midlength of the vessel to give a full bow and a fine stern. One drawing in the Baker MS. showing the profile of a fish drawn on the underbody of a ship is an early example of the long-held theory that a good ship should have 'a cod's head and a mackerel's tail.'

An attempt to describe ship design procedure of the sixteenth and seventeenth centuries in any space less than a full-fledged textbook would be foolhardy to say the least. And to all except the technically minded such a description would be boring. But by reference to Plate 32, a drawing from the Baker MS., and Figure 4, the lines for the proposed replica, some interesting details can be noted.

Briefly, the process of hull design consisted of setting down on paper a profile showing the keel, stem, and sternpost, the outline of the maximum section, a maximum breadth line in plan and profile, and the breadth and rise of floor lines. The curved lines are true arcs of circles, combinations of arcs, or lines derived from circles. Using the above basic lines as guides, the transverse sections through the ship were drawn in with a compass and straightedge. Available data indicates that these were transferred directly to the timbers, the shipwrights having no knowledge of fairing the sections by means of waterlines and buttocks.

The first step is to set out the length of the keel and to draw in the stem and sternpost. The overhangs of the stem and sternpost were termed the 'rakes' and, while there does not seem to be any specific data for the amount of rake at each end, the sum of the two usually equalled the maximum breadth. Published data indicates that in actual ships the

forward rake was often greater and the stern rake less than shown on the drawings in the Baker MS. Plate 32 shows a stem profile composed of two arcs tangent to each other on a diagonal with the lower arc tangent to the keel. Other drawings show but one arc with a definite knuckle at the junction with the keel. The profile of the replica has a keel length of fifty-eight feet and uses the two-arc type of stem. The stern rake is greater than would be indicated by the published data for similar sized vessels but not as great as the drawings in the Baker MS.

The next step is to delineate the maximum section, usually termed the midship section although it is not always located at the midlength, and in this there is a considerable choice of method. The available examples generally follow that shown in Plate 32 which on each side of the centerline is composed of four arcs of circles and two straight lines—in a few the upper portion is a reverse curve rather than a straight line. The Baker MS. notes that a four-arc section with straight lines is in the Venetian manner. A section having a curved floor, noted as the Greek method, and another flat-floored section marked as Lyntton's system are also shown. The I.N.A. MS. gives detailed dimensions for both curved-floor and flat-floored sections. This curved-floor detail, coupled with the fact that this MS. contains rules for the proportions of galleys, suggests that it may be an English translation of a Mediterranean shipbuilder's notebook.

The best described section in either MS. is a three-arc and straight-line section given in the Baker MS. One of the design problems for the replica was the determination of a reasonable method for the progressive reduction of the various radii from the maximum section to the ends. By choosing this type of section there were a minimum number of arcs to worry about. Figure 1 shows the outline of the midship section for the proposed replica. Mathew Baker starts his description 'Fyrst ther moste be maed with the bredth and depth of the shipp a paralillogram whose half shall souffyes for this works' but it is better to continue the description in modern English and the dimensions of the replica.

In Figure 1 the basic rectangle made with the breadth of 25 feet and the depth of 12 feet 6 inches is ABDC and the half 'that shall suffice' is CDEF. One-fifth of the half breadth ED—2 feet 6 inches—is subtracted from the depth CD thus locating point G—the line HG is drawn parallel to ED. A line drawn from E to C intersects HG at point J and a perpendicular KM is erected from the base line through this point. The half breadth of the floor is then EK and as the depth of the vessel is equal to half the breadth, half the floor is the same as DG or 2 feet 6 inches.

The distance HL is set out as two-thirds of ED. Now with a compass the center N is found on KM so that an arc tangent to the base line at K will pass through L. The second center O is found in the same manner on the projection of the line LN while the third center is at Q, found by projecting a line from P through N. Point R is the same distance above

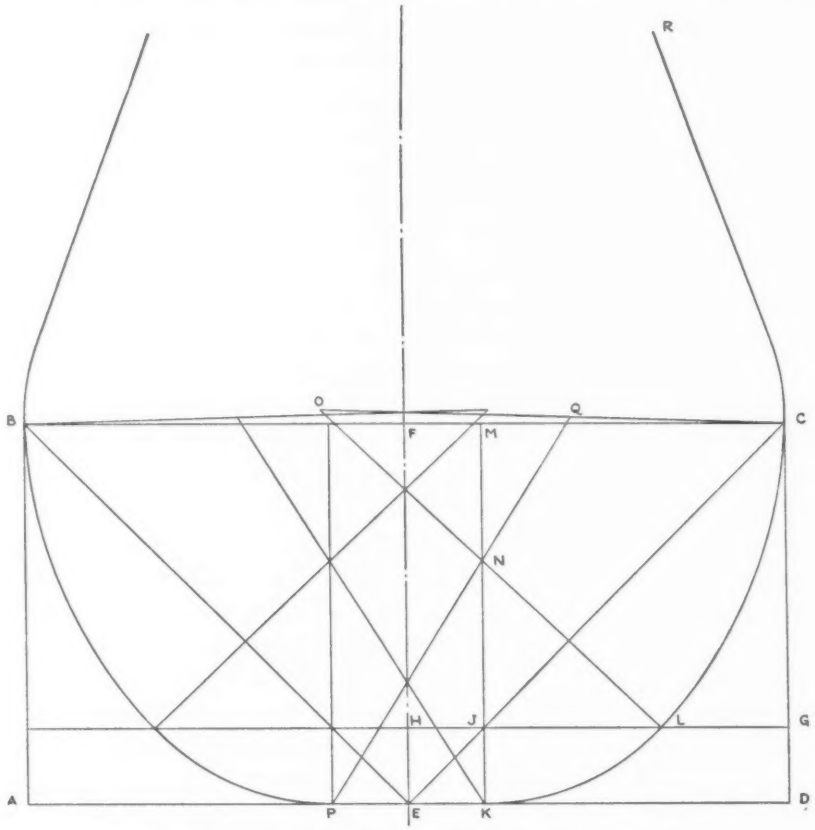


Fig. 1. Outline of Midsection for *Mayflower* Replica.

Q that Q is above the base line AD. The total breadth at R is two-thirds of the breadth of the ship AD.

In the earlier discussion of dimensions for the proposed replica one of the reasons for the rejection of the dimensions and proportions of *Adventure* of Ipswich as a basis was a comment on the tonnage rule of 1582 by the masters of Trinity House: 'The old rule is less true for lately built ships, which have great floors, but true for old ships with small floors.' The floor is defined in an old dictionary of about 1620 as 'so much

of the bottom of her as she doth rest upon when she is aground.'[10] The widths of floor have been measured on ten of the sections shown in the Baker MS. and these range from one-sixth to one-third of the maximum breadths; that shown on Plate 32 is about three-sixteenths. Two sections in the I.N.A. MS. have breadths of floors equal to three-tenths and four-tenths of the maximum. In 1670, Deane set out the breadth of floor as one-third of the breadth of the ship. The above instructions for delineating the midship section result in a floor breadth of but two-tenths of the maximum breadth. In view of this, the tonnage rule of 1582 that was used in the derivation of the dimensions of the replica is particularly applicable considering the Trinity House comment above.

As for the proper location of the maximum section on the keel, Mathew Baker gives the rule used by the 'Ciscilianes and Candians' but modifies this in the light of his own experience. Without getting bogged down with details and involved explanations, the rule as modified gives a location equal to 0.362 of the keel length abaft the forward end of the keel —for the replica this is 27 feet. This percentage is used on three of six profiles in the Baker MS., the remaining three are 0.308, 0.368, and 0.388 showing that he was not set in his ways.

In 1666 Samuel Pepys stated that Sir Anthony Deane was the first to be able to foretell the draft of a ship before it was launched. Mathew Baker was part way along the path to this knowledge as he discusses the effect of the location of the midship section on the trim of the vessel, trim being the difference in draft between the bow and the stern. He stated 'yf the same senter hade ben set on the myedest of the kell then the shipp wold have draw ase much water afore at the forefoot as abaft at the tuke. now foreasmuch as the sentur is moved forod . . . the shipp will hange astarne as all shipp doth hose flower lyeth before the mydest of the kell. nowe to know what this shipp will draw abaft more then afore, worke by the ruell of proportion. . . .' This 'ruell of proportion' relates the position of the midship section to the height of the 'tuke,' i.e. tuck, the junction of the flat stern with the sternpost. Working this out for the replica indicates that she would trim twenty-three inches by the stern.

For the drawing of the profile, the shape of the midsection, and locating the position of this section, there have been definite instructions or good drawings plus definite dimensions. For much of the remainder of the work in drawing the lines, the design procedure is less clear. To shape the bottom of the ship the breadth of floor, EK in Figure 1, and

[10] G. E. Manwaring and W. G. Perrin, *The Life and Works of Sir Henry Mainwaring* (London, The Navy Records Society, 1922), II, 149.

the lowest radius, KN, must be progressively reduced at each section towards the ends of the vessel and at the same time, the floor line must rise. Similarly, the body of the ship is shaped by suitable variations of the remaining arcs and their centers. The lines that guide these progressive variations for shaping the floor and body of the vessel are termed the rising and narrowing lines. Plate 32 shows only the rising line for the floor and the narrowing line for the body but, fortunately, the three sections shown in addition to the midship section make it possible to develop the narrowing of the floor and the rising of the body.

From the midship section aft it can be seen that the breadth of floor has been reduced to zero at roughly half the distance to the stern but that the lowest radius has been kept the same to that point. From there to the stern this radius is also reduced to zero. Working forward from the midship section, the breadth of floor becomes zero at the forward end of the keel while the radius is held as in working aft. The above pattern was followed in shaping the floor of the replica and, in the absence of definite information, it was assumed that the radius forward would be reduced to zero where the rising line intersects the stem.

By 1670 when Deane prepared his 'Doctrine of Naval Architecture' of Pepys, the tapering of the breadth of floor was carried out over the entire length of the vessel instead of to the intermediate points described above. There are indications in the Baker MS. that this was proposed if not actually done in some instances before 1600.

An indication of the rising line for the maximum breadth can be obtained by plotting the heights of the maximum breadth on each of the four sections shown on Plate 32. In keeping with the general method of design this should be an arc of a circle. Based on the measurements from Plate 32 it was so drawn for the replica.

The narrowing line that determines the maximum breadth at each section is clearly shown in Plate 32 as a combination of two arcs. There is a long radius arc from the stern to about the forward end of the keel and a shorter radius arc shaping the bow. Similar narrowing lines are indicated on other drawings in the Baker MS., a few being somewhat bluffer in the bow. By use of one of the diagrams in the MS. the sections toward the stern may be made somewhat wider than a true arc would indicate. This particular diagram has been cited as the basis for dating the Baker MS. as *circa* 1586 for it has the note 'The firste that wase mad by this wase the *Vanguard*.' She was a large vessel of 449 tons burden built by Mathew Baker in 1586. In keeping with the premise that the replica

should represent a burdensome carrier the bluffest of the bow lines in the Baker MS. and the above noted diagram were used in drawing the breadth narrowing line for the replica.

While the shape of the rising and narrowing lines of the floor have a considerable effect on the shape of the ship, those for the breadth have even more, particularly at the bow. The high rising line forward, as derived from Plate 32 and used in developing the lines for the replica, produces relatively fine lines in the forebody. The armament of warships was greatly increased during the sixteenth century particularly in the ends of the vessels. Since the fastenings of the ship's structure were relatively poor, the whole fabric was quite elastic and this additional weight in the ends caused them to droop, a condition termed 'hogging.' Shipbuilders had to struggle with this hogging tendency until the end of the days of the large wooden ship. In the late sixteenth century it was partially overcome by increasing the displacement at the ends of the vessels.

To increase the displacement aft, the narrowing line for the breadth was pushed out but the rising line was held in about the same position as on Elizabethan ships. Forward, the breadth was increased and the bow arc made bluffer but the important change was the lowering of the rising line to a position nearer the load waterline of the ship. This position is shown very clearly on one of the plans in Deane's MS. It is a mistake to use this type of bow on an early sixteenth-century vessel.

In Plate 32 the curved shaded band running the length of the profile, like many of the other lines an arc of a circle of large radius, affects the external appearance of the ship rather than its shape. It represents one of the heavy timbers called 'wales' which serve to strengthen the vessel and to give the apparent sheer line. Many old prints and paintings show decks following the sheer of the wales—a common error, but one wonders how an artist expected sailors to stand on such decks. Actually there was little relation between the interior deck lines and the exterior appearance of an Elizabethan ship.

With the rising and narrowing lines for the floor and for the maximum breadth at each section determined, all the sections forward and aft of the midship section can be drawn in by progressive changes of the three arcs or 'sweeps' used in delineating the midship section. Two problems remain, the first being the reverse curve from the floor down to the keel where the floor rises towards the ends of the vessel. It is obvious from Plate 32 that in working aft from the midship section, this reverse curve reduces to zero at the stern. In working forward, the reverse at the quar-

ter length is shown but the ending is unknown. Again recourse was made to Deane's work and some reasonable looking sections were derived for the replica.

The second problem is the determination of the shape of the upper works which again were settled by reference to Plate 32 with some guesswork at the forward end. The sections aft are all straight lines with progressively decreasing slopes from the midship section to the stern. Forward, the slope of the midship section was gradually worked into a reverse curve. Thus, the body plan for the proposed replica as shown in the center of Figure 4 was drawn. As a check on the sections and to make the lines more intelligible to the eye of a modern naval architect, the waterlines and buttocks were drawn.

There are, unfortunately, very few published sets of lines representing sixteenth- and seventeenth-century vessels with which to compare those drawn for the proposed replica. Such lines as are shown in early printed works on shipbuilding are usually for the larger types of warships and generally are incomplete. Those in old manuscripts are usually about the same although Deane does show one complete design, the earliest complete scale drawing of a ship known in England. The dimensions of this design are close to those of *Rupert* built in 1666 which brought Deane much fame as a builder—length 120 feet, breadth 36 feet, and depth 14 feet. Plans published in historical surveys such as Charnock's *History of Marine Architecture* must be considered carefully as in this particular example, plates purporting to show vessels of the sixteenth century were engraved about 1800 using the then current methods of design.

Old models from which the lines have been lifted again are usually of warships; rarely were models made of the ordinary small merchantmen. Votive models for hanging in churches were often distorted, particularly in depth, to give a better appearance when viewed from below, but the so-called Admiralty type built-up models are generally considered to be fairly accurate. However, it is felt that in lifting and redrawing the lines from any type of old model, many of the characteristic bumps would be smoothed out by modern draftsmen.

As for modern models or drawings of ships of the period, the majority have but few of the characteristics shown by the Baker MS., the I.N.A. MS., or even by Deane's work. Those published by Professor F. Alexander Magoun are definitely of the 'round chunky variety.'[11] Plans labelled *Mayflower* that are offered by a firm specializing in model supplies are

[11] F. Alexander Magoun, *The Frigate Constitution and Other Historic Ships* (Salem: Marine Research Society, 1928).

for a ship of at least one hundred years later. The lines for Dr. R. C. Anderson's model, now on display in Pilgrim Hall, Plymouth, Massachusetts, do not seem to have been published although the outboard profile and sail plan did appear in the *Mariner's Mirror*.[12]

Perhaps the best for comparison with the proposed lines are those for a model of a large four-masted Elizabethan warship and a set drawn in accordance with Deane's instructions to illustrate a technical paper on ship forms. Of course, there is Deane's original plan but the lower reverse curves in the forebody have been drawn in so roughly that they are unreliable for checking the shapes of the lower waterlines.

The model of the four-masted Elizabethan warship was designed and built in the Science Museum, London, about 1931 and is based largely on material in the Baker MS. A description of this model, reproductions of certain pages from the Baker MS. and the lines plan were published in the April 1932 issue of *Yachting*.[13] The dimensions are those of *Elizabeth Jonas* as rebuilt in 1596—length of keel 100 feet, breadth 36 feet, and depth 18 feet. The profile and waterlines of this design are shown in Figure 2.[14] To be noticed in particular is the local bump forward on the lowest waterline similar to those occurring on the 2-foot and 4-foot waterlines of the proposed lines.

The lines to Deane's rules shown in Figure 3 were drawn by Dr. G. S. Baker, O.B.E., to illustrated his paper on 'Development of Hull Form of Merchant Vessels' in 1937;[15] the dimensions are the same as Deane's. Three points derived from a breadth narrowing line in the Baker MS. were plotted to show how the breadth was increased during the sixteenth century. A low waterline was plotted on this drawing and it shows the same local bump forward as noted above for *Elizabeth Jonas* and the proposed lines.

Considering the drafting methods employed, the proposed lines as a whole are surprisingly good and indicate that a vessel built to them should be reasonably fast. *Mayflower*'s return voyage to England of thirty-one days is proof that she was no slouch.[16] The poor windward sailing abilities of ships of the period can be attributed more to the sails and rigging than to hull form. If modern methods had been used in drafting

12 R. C. Anderson, 'A "Mayflower" Model,' *The Mariner's Mirror*, XXVI (1936), 260-263.

13 Weston Martyr, 'Looking at a Sixteenth Century Ship,' *Yachting*, April 1932, p. 61-63, 110.

14 Reproduced by permission of Yachting Publishing Corp.

15 G. S. Baker, 'Development of Hull Forms of Merchant Vessels,' The Sixth Andrew Laing Lecture, North East Coast Institution of Engineers and Shipbuilders, Newcastle-upon-Tyne, England, December 1937. Lines reproduced by permission of the N.E.C. Institution from *Transactions*, LIV, Part 2, 58-59.

16 Magoun, op. cit., p. 43.

the lines, some of the sharp reverses in the waterlines and the local bumps would have been smoothed out but many characteristics of early sixteenth-century ships would have been lost. The lines shown in Figure 4 are the fourth set drawn for the proposed replica and it is believed that they are as typical of the period as reasonable study and effort can produce at this time.

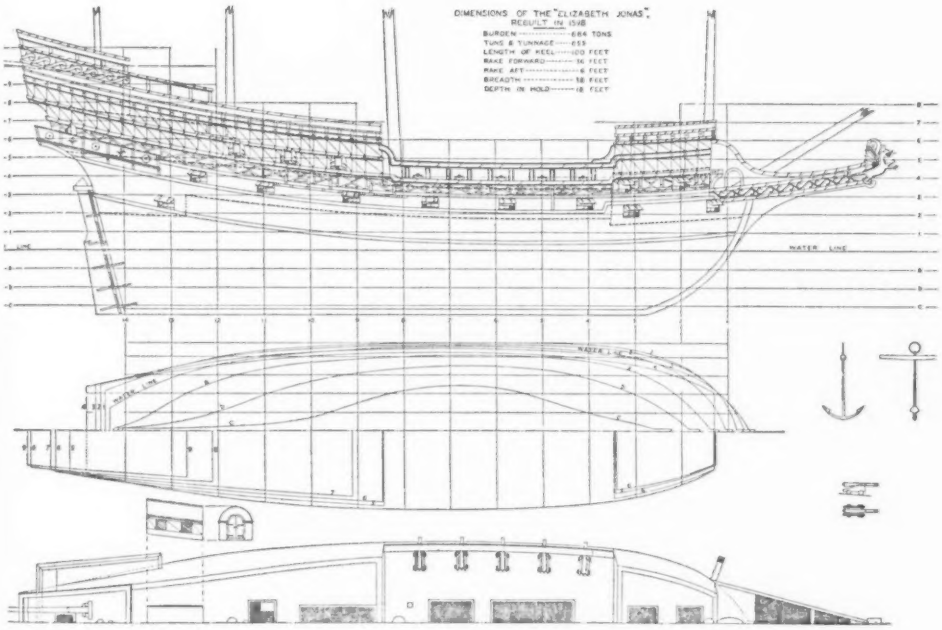

DIMENSIONS OF THE "ELIZABETH JONAS"
RESULT IN 1948
BURDEN ..... 684 TONS
TUNS & TUNNAGE 855
LENGTH OF KEEL ..... 100 FEET
RAKE FORWARD ..... 16 FEET
RAKE AFT ..... 6 FEET
BREADTH ..... 36 FEET
DEPTH IN HOLD ..... 18 FEET
WATER LINE

Fig. 2. Lines of large Elizabethan Galleon, *Elizabeth Jonas*.

APPENDIX

The so-called 'lines' of a ship is the plan that delineates the form of the vessel. It may look quite complicated to the uninitiated but, in reality, it is quite simple as it merely represents a ship cut by planes in three directions. The ship is shown in three views—the side view or profile, the end view or body plan, and the bottom or plan view.

Perhaps the simplest description of 'lines' may be to liken a ship to a loaf of bread—say a loaf of French bread well pointed at the ends. The outline of the loaf as seen from the side is its profile. Assuming this loaf of bread to have been purchased ready sliced, the cuts show only as vertical lines on the side or profile of the loaf. If, however, one looks at an end of the loaf and peels off slice after slice in succession, the change in shape from the pointed end to the largest slice is readily apparent. Similarly, the sections of a ship are vertical lines on the profile while

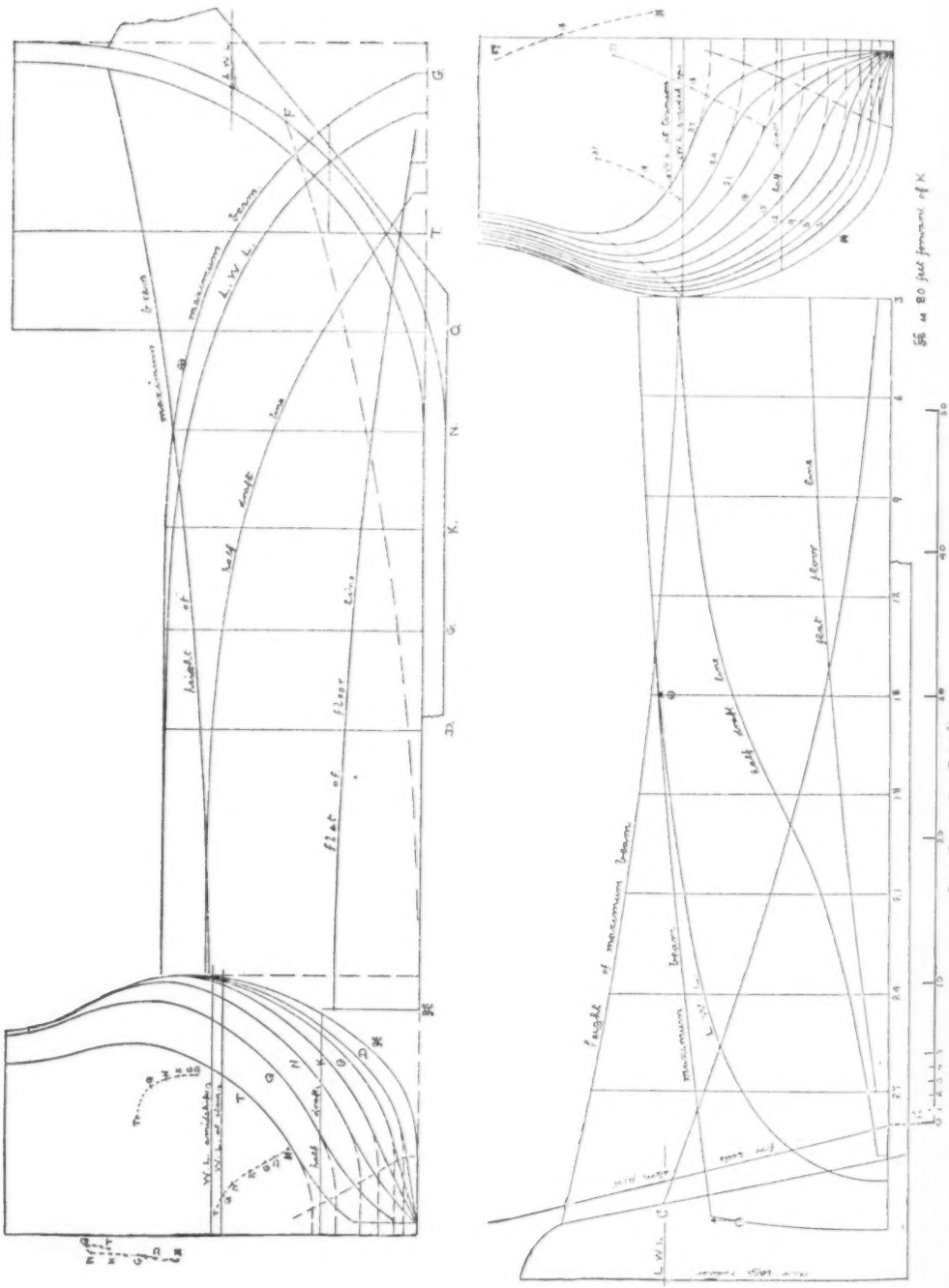


Fig. 3. Lines of Vessel of 1670. Based on Rules in Sir Anthony Deane's MS.

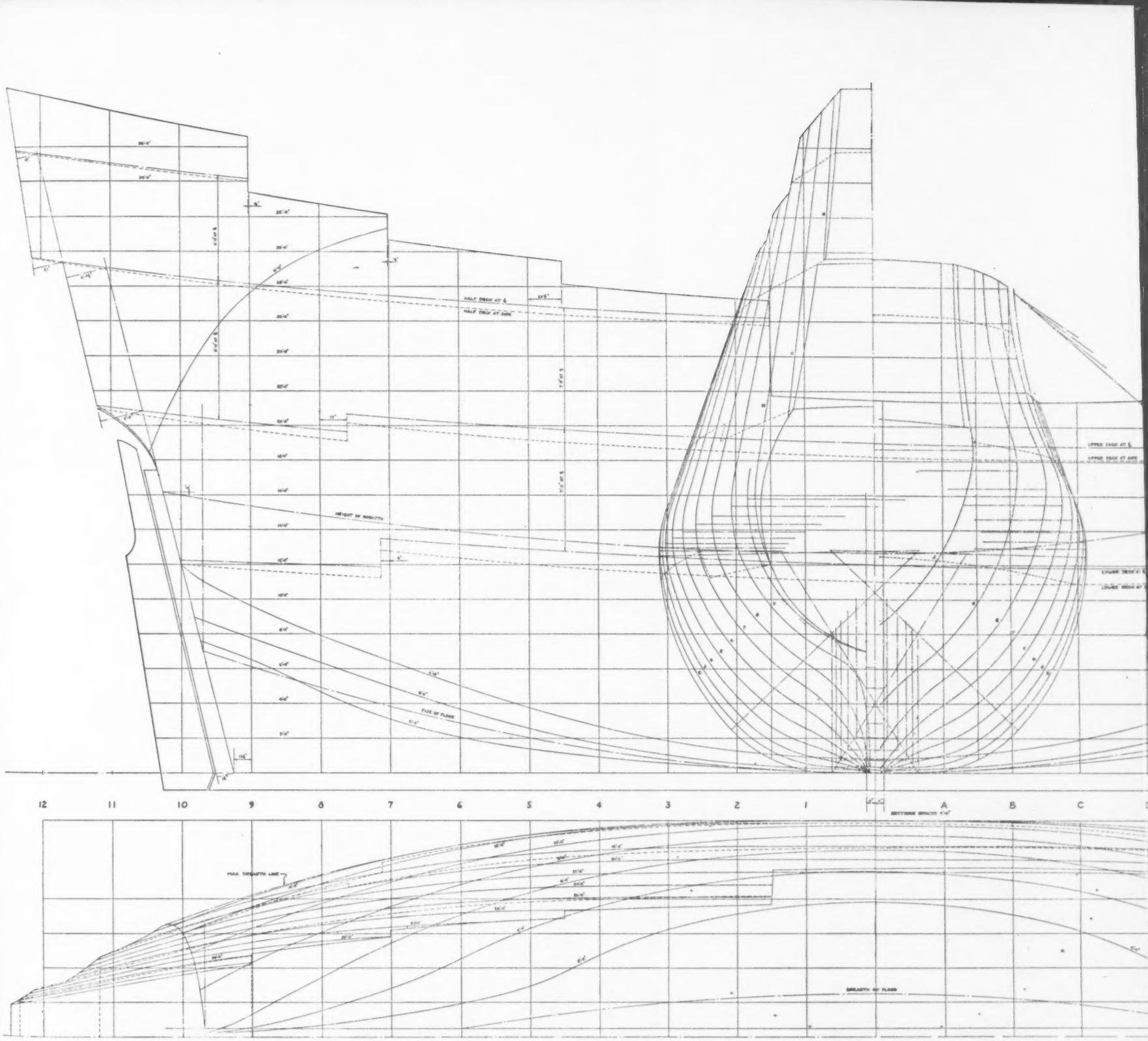


Fig. 4. Lines for *Mayflower* Replica.

Length of keel to back of main post—58 feet 0 inches, Breadth within the plank—25 feet 0 inches, Depth to the bread

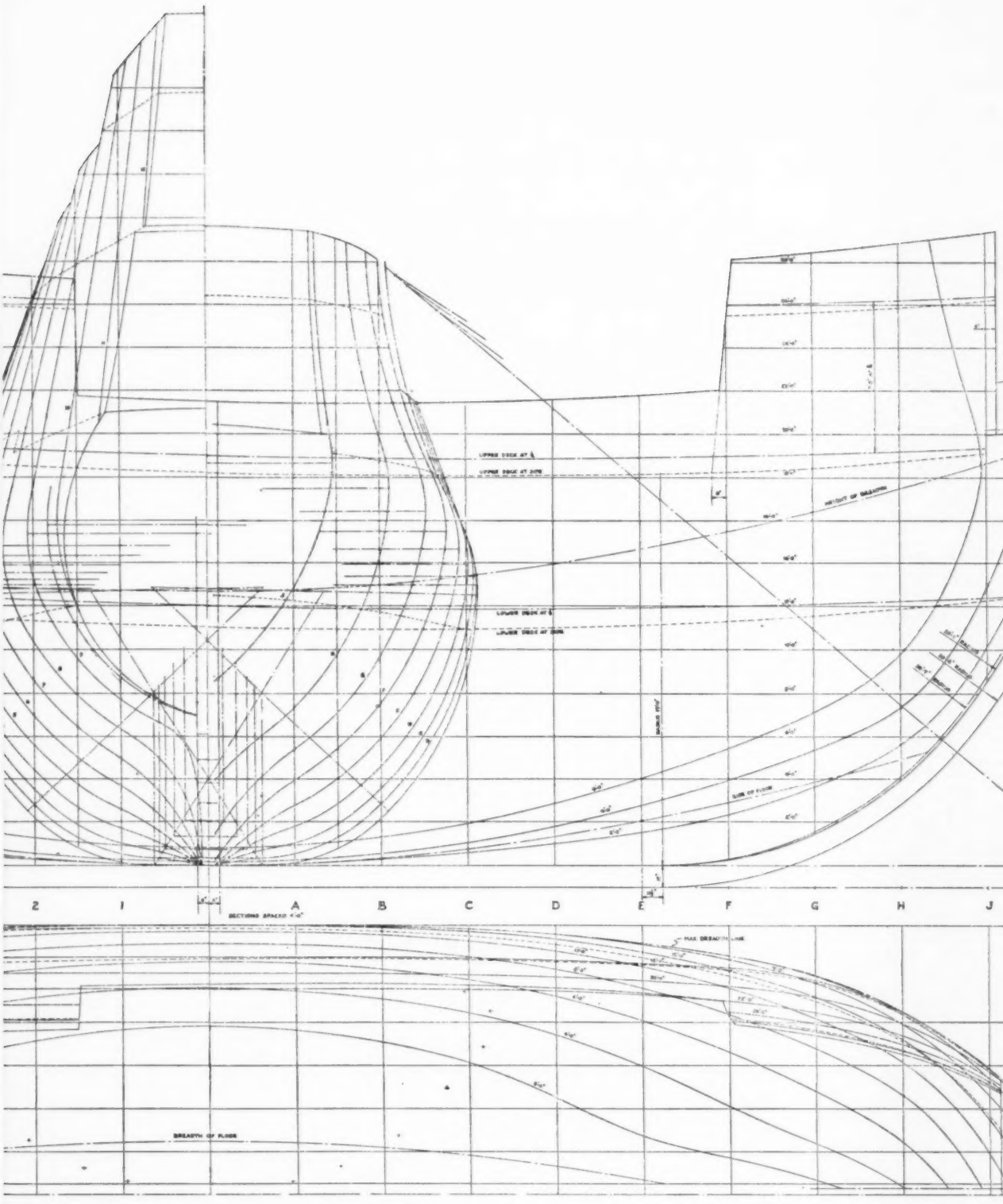
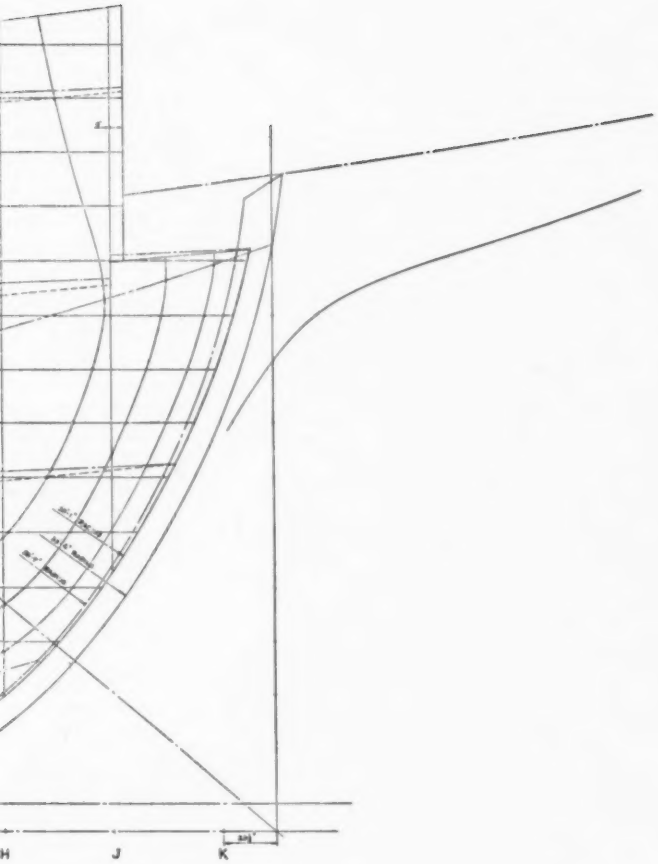


Fig. 4. Lines for *Mayflower* Replica.

readth within the plank—25 feet 0 inches, Depth to the breadth—12 feet 6 inches, Burden by rule of 1582—181



of 1582—181 tons

the bod
on the
usually
line.

If, ho
sharp k
layers p
but, as
the loa
differen
ally dra

Instea
wise pa
end and
the side
curves o

In m
curves,
naval ar
all lines
check in
for the
produce
tangent,

William
Pilgrims'

the body plan shows one half of these sections as seen from the end—from the bow on the right side and from the stern on the left. For convenience the body plan is usually drawn on the profile or side view using the maximum section as the centerline.

If, however, the loaf of bread was purchased unsliced and one has at hand a large sharp knife, the loaf can be sliced in two other directions. First, let it be cut in layers parallel to the bottom. These will show as horizontal lines in the profile but, as they are peeled off, each shows the characteristic double pointed shape of the loaf. On the ship such horizontal planes are called waterlines and represent different levels at which the ship may float. On a lines plan, the waterlines are usually drawn below the profile.

Instead of being cut parallel to the bottom, the loaf could have been sliced lengthwise parallel to the centerline. Such slices would appear as straight lines in both the end and bottom views but would have shapes similar to the profile when seen from the side. On the ship these are commonly called buttocks and are long sweeping curves drawn on the profile.

In modern ship design the waterlines and buttocks are long sweeping smooth curves, parabolic rather than circular in nature. When drawing a set of lines, the naval architect takes particular care that there are no local bumps or hollows, that all lines are 'fair' and that intersections of the sections, waterlines, and buttocks check in all three views. The Elizabethan shipwright, working with arcs of circles for the sections and having no knowledge of the use of waterlines and buttocks, produced ships' lines that were quite 'unfair' since where arcs of various radii come tangent, a definite local bump can be seen.

William A. Baker is the naval architect from Quincy who is working on the plans of the Pilgrims' Mayflower. *This is the second in his series of articles resulting from his research.*

Queen of the Hudson

BY DONALD C. RINGWALD

PART II

High Speed

Over a long period of time, *Mary Powell* made a number of excellent runs, amongst which are these:

1863—11 June—Jay St. to off Rondout lighthouse, 4 h. 30 m. elapsed time (8 ldgs.). To Poughkeepsie, 3 h. 40 m. elapsed time (7 ldgs.); 3 h. 20 m. running time.

1864—latter Sept. —Jay St. to off Caldwells, at the southern gateway to the Highlands, 1 h. 47 m. running time; to Cozzens', the first landing, 2 h. 6 m. running time; to Newburgh, 2 h. 36 m. running time.

1867—10 June—Desbrosses St. to off Rondout lighthouse, 4 h. 23 m. elapsed time (7 ldgs.); 4 h. running time.
Elapsed time to Newburgh, 2 h. 50 m. (3 ldgs.); to Poughkeepsie, 3 h. 40 m. (6 ldgs.).
Poughkeepsie to off Rondout lighthouse, 39 m. running time.
Total number of passengers discharged at 7 ldgs., about 250.

1873—18 June—Vestry St. to off Rondout lighthouse, 4 h. 26 m. elapsed time.
To Newburgh, 2 h. 49 m. elapsed time (3 ldgs.).

1874— 6 Aug.—Vestry St. to Newburgh, 2 h. 47 m. elapsed time (3 ldgs.). To Poughkeepsie, 3 h. 39½ m. elapsed time (6 ldgs.); 3 h. 19 m. running time.[43]

1879—30 May —Vestry St. to Newburgh, 2 h. 50 m. elapsed time.

1881— 7 June—Vestry St. to off Rondout lighthouse, 4 h. 32 m. elapsed time.
To Newburgh, 3 h. 1 m. elapsed time (4 ldgs.); 2 h. 53 m. running time. To Poughkeepsie, 3 h. 47 m. elapsed time (7 ldgs.); 3 h. 33 m. running time.

1881—20 June—W. 22d St. to off Rondout lighthouse, 4 h. 19½ m. elapsed time; 3 h. 53½ m. running time.
Elapsed time to Newburgh, 2 h. 44½ m.; to Poughkeepsie, 3 h. 33¾ m.

[43] Andrew Fletcher, who was aboard for at least part of this run, later said that the time of departure was taken after *Mary Powell* had left Vestry St. pier and headed up in the stream. Since the time of departure on 10 June 1867 was taken when the steamboat left the side of the Desbrosses St.

1882—26 May —W. 22d St. to off Rondout lighthouse, 4 h. 14 m. elapsed time; 3 h. 54 m. minimum running time. To Newburgh, 2 h. 41 m. elapsed time. To Poughkeepsie, 3 h. 28 m. elapsed time; 3 h. 13 m. running time.[44]

Following the courses of *Mary Powell,* these are the approximate distances in statute miles from the original New York terminus at Jay Street to various points on the route: off Piermont, 23.88; off Caldwells, 41.9; Cozzens', 49.2; Newburgh, 59.55; Poughkeepsie, 74.35; off Rondout lighthouse, 89.35. For distances from the terminus at either Desbrosses Street or Vestry Street, deduct ⅓ mile; from West 22d Street landing, deduct another 1⅝ miles.

Using these distances and selected runs, average speeds in statute miles per hour from the termini are:

Vestry St. to off Piermont	—23.95[45]
Jay St. to off Caldwells	—23.50 (Sept. 1864)
Jay St. to Cozzens' (the first ldg.)	—23.43 (Sept. 1864)
Jay St. to Newburgh	—22.90 (Sept. 1864)
Jay St. to Poughkeepsie	—22.31 (11 June 1863)
Desbrosses St. to off Rondout lighthouse	—22.25 (10 June 1867)
From W. 22d St. landing to Poughkeepsie	—22.44 (26 May 1882)
W. 22d St. landing to off Rondout lighthouse	—22.40 (20 June 1881)

Admittedly, the actual mileage covered by *Mary Powell* on any or all of these runs may have varied slightly from the distances listed above. Nevertheless, the averages are felt to be a fair indication of her top speed to the points named. They were, of course, computed on running time, after landing deductions had been made. This allowance was generally considered to be the time between the ringing of the slow bell upon approaching a landing to the ringing of the full speed ahead bell upon leaving.

For short spurts, one can find claim for a run between Newburgh and

pier, it is possible that the 1867 run was slightly faster as far as Poughkeepsie. The time given for an arrival off Rondout lighthouse on 6 August 1874 varies, but upon analysis would seem to be very close to the 1867 time. This latter time has been used in computing average speed to Rondout lighthouse in a following paragraph, since it seems more reliable.

[44] The 1st engineer (chief, or, to use the title then in vogue on Hudson River steamboats, 'boss') on the run of 10 June 1867 was Andrew Barrett. As far as is known, on all of the runs from 1873 through 1882, Lyman Lawrence was 1st engineer and Joel N. Hayes, 2d, or assistant engineer. In 1885, Mr. Hayes succeeded Mr. Lawrence, who had been in poor health. Mr. Hayes, born 10 January 1845, had a partially crippled hand as a result of a wound received at Gettysburg. He died 4 November 1892, over five years before Mr. Lawrence.

During this period, *Mary Powell*'s four firemen divided their day into four watches, which changed at Anthony's Nose, about midway on the down and up trips, and at New York. Each man fired on two watches, oiled on one and was off duty on one.

[45] On the run to Piermont, there were several trips of record on which the time ranged from 59 to 61 minutes. Fifty-nine minutes was used in computing this average.

New Hamburg at 26¾ miles per hour and for others at even greater speed. Nevertheless, Andrew Fletcher, of the firm which had built *Powell*'s engine, estimated 25 miles per hour as a maximum for a short distance under completely advantageous conditions and this would appear to be just.

All of the fast trips were northbound, when she was not required to keep to a timetable and could be pushed the entire distance from New York to Rondout. On them all, tidal and wind conditions were favorable, while the steam pressure generally carried was over thirty pounds.

In the days of the early competition amongst steamboats on the Hudson, there had commenced the great High Speed debate, which continued intermittently through the years. Since rarely was anything definitely settled, the topic was all the more fascinating.

Even though a discussion of fast steamboats is not within the scope of this article, some echoes of the debate in relation to *Mary Powell* and other Hudson River steamers of the latter decades of the nineteenth century may be of interest. Primarily, in addition to *Powell*, the steamboats of that period which were usually regarded as being capable of well above ordinary speed were those running on the day line between New York and Albany, namely, *Daniel Drew*, built in 1860; *Chauncey Vibbard*, 1864; *Albany*, 1880, which replaced *Daniel Drew; New York*, 1887, which replaced *Chauncey Vibbard*.

On 3 July 1880, *Albany* made her first regular trip and on 22 October, after the season had closed, ran from New York to Albany to lay up for the winter. A test was made to see how fast she could cover the distance to Poughkeepsie without landing en route and with only invited guests aboard. The result ranges from 3 hours 8 minutes to 3 hours 13 minutes, with the starting point given as either West 22d Street or West 30th Street in New York. Once again the High Speed debate came to a boil and newspapers along the river turned out lengthy items on the subject.

As a consequence, after *Mary Powell*'s 7 June 1881 run, a reporter for the New York *Sun* interviewed Captain A. L. Anderson, who opened with his usual statement, 'Now, I want to tell you, in the first place, that we don't try to make fast time. This is a family boat . . .'

He went on to say that the fastest trip of *Mary Powell* as far as Poughkeepsie was made in 1874.[46] In summing up, the captain pointed out that

[46] Having selected the 11 June 1863 run to Poughkeepsie for inclusion in the average speeds listing after careful consideration of the known facts, the writer particularly sets forth this observation of Captain Anderson's for the benefit of those who are inclined to agree. Another contender for the honor, the 10 June 1867 run, was never publicly recognized by the captain. After all, he could scarcely be expected to point with pride to something that had happened when he was not connected with the boat.

the speediest boats in the world were on the Hudson River and that none of them could beat his steamboat. Then he suggested that the reporter go over to see Andrew Fletcher.

Mr. Fletcher agreed in part with the captain, saying, 'The fastest trip of the Mary Powell that I know of was made August 6, 1874.'

He mentioned her time to Poughkeepsie on that day and then launched into a general discussion of fast steamboats. Mr. Fletcher probably caused Captain Anderson to rue his suggestion to the reporter by remarking that *Albany,* from her build and machinery, ought to be a little faster than *Mary Powell.* He could hardly have said otherwise, since *Albany*'s engine was one of the latest products of the Fletcher works, but he did not make a definite statement on the point and added that *Albany, Mary Powell* and *Chauncey Vibbard* were all very fast.[47]

After the close of the 1881 season, Captain Anderson stated that during the season *Powell* had beaten '. . . the fastest time on record. We left New York at 3:30 o'clock and arrived at Rondout light house at 7:45.'[48] The captain apparently referred to a trip on 30 June, for which little information has thus far been uncovered and which would have been made with an unfavorable tide. Again, after the 26 May 1882 run, it was claimed to be the best trip on record, better than anything previous by '10 minutes.'[49] Since these statements and some of the figures relative to the 1881-1882 runs were released during the intense and well publicized rivalry with *Albany,* it can be understood that they might include what would appear to be slight exaggerations.

The rivalry went marching on. Over twenty years later, the noted maritime historian, John H. Morrison, found it impossible even by that time to make a definite statement as to the fastest steamboat on the Hudson River. *Powell* was more than forty years old when he wrote:[50]

> There has been, since the *Albany* and the *New York,* of the Hudson River day line, have been running, considerable discussion at one time and another in steamboat circles of the question, Which is the fastest boat, the *Mary Powell,* the *Albany,* or the *New York*? Each have their admirers, who are positive in their opinions of the superiority of their favorite, but it is very doubtful if the question will be practically settled, as to the relative speed of these vessels by a trial.

[47] As reported in *The Kingston Daily Freeman,* 13 June 1881.

[48] *The Kingston Daily Freeman,* 21 October 1881.

[49] No record has yet been found of a run often mentioned by the Mary Powell Steamboat Co. in its guide books. On this run, sometimes dated 1881, *Mary Powell* was supposed to have left New York at 3:33 P.M. and arrived at Rondout at 7:45 P.M.—'distance 100 miles.' This seems like a combination of the nebulous 30 June 1881 and the 26 May 1882 runs.

[50] In his *History of American Steam Navigation* (New York: W. F. Sametz & Co., Inc., 1903), pp. 154-155.

Mr. Morrison then went back to the earlier days of *Powell* and posed a question:

> There is one thing to answer satisfactorily, it would seem, for the *Mary Powell* to maintain the claim of the 'Queen of the Hudson.' In October, 1871, the *Mary Powell* . . . made four round trips on the Albany day line, and during that service was unable to make as good running time as her consort, the *Daniel Drew,* running on opposite days. If she was the 'Queen of the Hudson,' as claimed, why did she not maintain that reputation while running on the day line?

In the present absence of any figures as to how many minutes difference there was between the time of the two boats, that is a difficult question to answer. But it would be hasty to conclude that *Daniel Drew* was faster than *Mary Powell* on that basis alone. As Captain A. L. Anderson pointed out later, *Mary Powell,* with the 'Van Santvoord saloon,' was then much too heavy. It must also be kept in mind that if Pilot Betts handled her during these trips, he would certainly not have been as familiar with the difficult channel of the upper river as the pilots on *Daniel Drew,* who made the run all season long.

In connection with *Mary Powell* versus *Daniel Drew,* an interview with Lewis Ensign, made shortly after and as a result of *Mary Powell*'s fast trip of 30 May 1879, is interesting to consider.[51] Mr. Ensign, an ancient mariner, was then pilot of *Daniel Drew* and, in the ensuing discussion of fast trips on the Hudson, had only the slightest of nods for his own boat and ignored completely her companion, *Chauncey Vibbard.* Although he did consider *Mary Powell* to be speedy, he scoffed, in proper High Speed debating style, at the idea of her or any other steamboat running to Cozzens' in two hours eleven minutes.[52] As far as he was concerned, the fastest steamboat ever built was *New World* of 1848 and, to support that contention, he mentioned that *she* had run from Chambers Street to Anthony's Nose in two hours. At that rate, she certainly could have covered the four miles from the Nose to Cozzens' in eleven minutes!

That was the nice thing about the topic. One simply formed his opinion, stuck to it through thick and thin and looked down his nose at anything contradictory. Further, with sufficient knowledge of tides, winds and steam pressure, he could fit any set of circumstances to bolster his argument.

Yet even the most partisan supporters of other steamboats paid constant tribute to *Mary Powell*'s prowess in the field of speed by using her

[51] *Poughkeepsie Daily Eagle,* 13 June 1879.

[52] Two hours and either eleven or twelve minutes was *Mary Powell*'s running time from Vestry Street to Cozzens' on 30 May 1879. This, as has been shown, was not her best time to that point.

performances as the rule by which to measure the accomplishments of their own favorites. Her reputation was formidable. She established it early and she maintained it for so long and so well that it has far outlived that of any of her rivals.

For many years, yachtsmen regarded her as the ultimate test and very often brought their newest craft to the lower Hudson to lie in wait for her. In the ensuing brush, they generally found to their dismay that their pet was not quite the vessel they had expected her to be. One exception was the Herreshoffs' experimental *Stiletto,* low and rakish, built for high speed and little like the conventional steam yacht. On the afternoon of 10 June 1885, she lay off West 22d Street, waiting for *Powell* to come up. *Stiletto,* from her design and propelling machinery, should not have had any trouble in the contest that followed, and did not have. When she turned in for her destination at Sing Sing, she was from a mile and a half to a mile and three quarters ahead. *Mary Powell* gave *Stiletto* a three blast salute on her whistle as she passed Sing Sing and continued unruffled up the river.

Even as late as 1911, in some quarters *Mary Powell* was still the boat to beat. In that year the Central-Hudson Steamboat Co., proprietor of a fleet of steamboats then averaging almost forty years in age, brought out a new single screw passenger and freight steamboat named *Benjamin B. Odell.* The Central-Hudson line had its headquarters in Newburgh and the people of that city were extremely proud of the new 'flier.'

On 3 October 1911, *Mary Powell* had a post-season excursion to New York. Returning in the afternoon, she was leaving West 129th Street as *Benjamin B. Odell* rounded to, prior to landing at that pier to take on passengers. By the time *Odell* was once more under way and again rounded to, *Mary Powell* was about three miles ahead.

Odell's crew was nettled by a newspaper story that *Mary Powell* had recently passed them and decided to push their boat with everything she had. After a stern chase of about 36 miles, *Odell* caught *Mary Powell* off Iona Island. As it happened, a large number of *Powell*'s passengers were Newburghers and, as *Benjamin B. Odell* drew closer and closer with her Central-Hudson line banner flying in the breeze, their cheers grew louder and louder. The loyal crew of *Mary Powell* did their best in the way of squelching looks, but they were no match for the enthusiasm that reigned when *Odell* went by.[53]

As Captain A. Eltinge Anderson pointed out later, *Mary Powell* had been running for half a century and was far too old for racing. He claimed

[53] *The Newburgh* (N.Y.) *Daily News,* 3-4 October 1911; *Newburgh Daily Journal,* 4 October 1911.

that there had been no contest at all and that *Powell* was simply proceeding on schedule. Actually, all things considered, it was a meaningless episode.

Mary Powell's fame as a fast steamboat has so increased with the years that today one is led to believe that she did nothing all of her life but sail up and down the river, racing other boats; that her hull was greased before each encounter; and that she never moved at a speed of less than 25 miles per hour. Her reputation was sound, but, as we have seen, it was based upon consistent performance in her regular work over the years. The facts are much more to her credit than are the spectacular fabrications which have grown up and which continue to grow up about her.

Accidents

Mary Powell's life was little marred by accidents or mishaps, but they did occur. Most were minor; a few were more serious. Included here are some of them.

On 29 September 1866, while proceeding south in a fog, she struck an old, sunken landing above Newburgh and badly damaged one of her wheels. *Armenia* was secured briefly as a replacement until repairs were made.

When a short distance above Esopus Island on the evening of 11 September 1877, *Mary Powell*'s air pump broke. Engineers Lawrence and Hayes were able to make temporary repairs so that she could be operated by hand. Without excessive delay, she was able to make her own way on to Rondout, where complete repairs were effected during the night.

On the morning of 28 June 1878, again running in a fog, she scraped bottom north of New Hamburg at 7:30 A.M. with sufficient force to break some of the turnbuckles on her stays. She continued to New Hamburg, where she was inspected and found able to continue the trip.

While nearing Poughkeepsie on her up trip on 1 September 1879, *Mary Powell*'s port shaft was found to be running hot. After an inspection at Poughkeepsie, which revealed a slight fracture in the shaft just inside the spring bearing, she continued on to Rondout.

Engineers Lawrence and Hayes felt that they could run the remainder of the season without undue difficulty, but Captain A. L. Anderson decided to lay up the boat until Mr. Fletcher could come up to inspect the shaft. He telegraphed Alfred Van Santvoord relative to chartering *Armenia,* the spare boat of the New York and Albany day line, and Mr. Van Santvoord replied that that boat, then at Albany, was at his disposal. Next he telegraphed Superintendent Toucey of the Hudson River Railroad to arrange to have the midnight express stop at Rhinecliff and this

request was also granted. Then Mate Bishop and Engineer Hayes were rowed across the river and rattled on to Albany by train to take charge of *Armenia*. She arrived in Rondout Creek about 9 the following morning, put in alongside *Mary Powell* to pick up the rest of the crew and then went on to New York, making the regular landings.

Mary Powell remained at Rondout until that night, when she proceeded to John Roach's works at the foot of East 10th Street in New York to be fitted with a new shaft. Mr. Roach kept his men steadily at work and on the afternoon of 11 September the steamboat went back on the run from New York.

On 21 May 1885, *Mary Powell* left Poughkeepsie shortly after 2 P.M. with the pre-season Vassar excursion and reached New York about 6:30 P.M. As part of the trip, she went around the Battery and lay in the East River for several minutes to give her passengers the opportunity to look and marvel at the new Brooklyn Bridge. Coming back along the North River piers, she was in collison with the Pennsylvania Railroad ferryboat *New Brunswick* and suffered some damaged joiner work on the port side, ahead of the wheelhouse.

Again in 1887, misfortune came early in the season. That year she commenced regular trips from Rondout on 19 May and, before the initial run was a third over, *Mary Powell* encountered trouble. She landed at New Hamburg and crossed from the eastward to the westward near Low Point buoy. At the same time, the side-wheeler *M. Martin* of Romer & Tremper's Newburgh and Albany day line for freight and passengers was going north on her regular run. The morning was somewhat foggy and both boats were proceeding under one bell, i.e., at slow speed. When *M. Martin*'s whistle was heard on *Mary Powell,* the latter's pilot rang to stop the engine. Both boats sighted each other at the same time; both pilots rang to go astern; but both boats still had headway on when *M. Martin*'s bow struck *Mary Powell* forward of the paddle wheel on the port side. *Powell*'s joiner work was torn away in that area, a gash of from 8 to 10 feet long was made in her guard and the side of her barber shop was crushed in, but her hull was untouched. *M. Martin*'s damage was light, consisting only of the scraping off of some copper on the starboard side of her bow above the waterline, some broken joiner work on the main deck and the breaking off of part of the jack staff. Neither boat required assistance and *M. Martin* continued on her regular run.

Mary Powell went as far as Newburgh, discharged her passengers, who continued to New York by rail, and then put into shipyard for repairs. Upon completion of this work, she left Newburgh shortly after midnight,

arrived in Rondout at 3:30 A.M. and left again at 5:30 A.M. on her next regular trip.

On 5 May 1891, *M. Martin* figured in another accident to *Mary Powell,* which was then lying in Rondout Creek, undergoing her spring outfitting. The ferryboat *Transport* was bound out the creek on her 10:10 A.M. trip to Rhinecliff, while *M. Martin* was coming in to make Rondout landing on her run to Albany. *M. Martin* blew two blasts on her whistle to pass *Transport* off her starboard side. *Transport* responded and her pilot, Daniel Coddington, put his wheel hard over to change course. According to him, the ferryboat sheered off to port and he was unable to check her. He rang for full speed astern, but could not prevent *Transport* from running into *Mary Powell.*

Powell was considerably damaged, having about 50 feet of her joiner work stove in, a blower knocked out of position, the shaft of a blower engine bent, a spring beam shifted, and some of the guard torn out. In addition, one of the iron stays from a spar snapped in two, and three or four others were twisted and bent. When she was struck, *Mary Powell* lurched over and her guard on the landing side, coming up, broke off five spiles along the front of the wharf and displaced the stringpiece. Captain A. E. Anderson, standing on the landing, was an amazed spectator.

The following night the tugboat *Columbia* of the Cornell Steamboat Co. towed *Mary Powell* to New York for dry-docking and repair. She arrived back in Rondout on 14 May.

On her down trip on 7 July 1894, a crack was discovered in the starboard shaft. She continued slowly to New York and, after she had discharged her passengers, went over to the Fletcher works for repairs. Not until 17 July did *Mary Powell* resume service from New York. Remarkably enough, during that busy period of the season, the route was temporarily suspended. Probably no suitable steamboat could be chartered and the Mary Powell Steamboat Co. preferred to run nothing rather than to put on an inferior boat.

Just after she had come up out of Haverstraw Bay on 20 June 1899, *Mary Powell* was caught in a blow of unusual violence. Accompanied by an electrical display, great banks of clouds had been piling up to the southwest and to the north, and it appeared as though these two storms met, forming a funnel-shaped cloud of dust on the west bank of the river. This moved out across the water to the steamboat, seeming almost to suck her up and then release her. The starboard stack was blown down on the wheelhouse, which was smashed in, and shortly after the port stack blew down across the hurricane deck towards the starboard side. Both were

held aboard by 2¼" iron braces that bent like straws, but showers of sparks scattered over the boat.[54]

During the fifteen-minute buffeting by the wind and the rain, one of the sliding doors on the main deck was blown in, the lifeboat davits were torn out of shape and about forty campstools were lost overboard. None of the approximately 200 passengers aboard was injured. Captain A. E. Anderson felt that it was the worst storm he had ever seen in the quarter of a century he had been on the river and was thankful that his boat had not encountered the squall further down in the broad reaches of Haverstraw Bay, the widest part of the Hudson.

After it was over, the blowers were set to work and *Mary Powell* continued on her way to Rondout, where work went on all night to make her ready to resume in the morning.

On Saturday morning, 12 October 1901, at 7:40 A.M., while northbound near Marlborough with a post-season excursion to Albany, *Mary Powell* was in collision in a fog with *Dean Richmond*, one of the big New York and Albany night boats. *Richmond* was coming down from Albany, running very late because of the weather. When the steamboats sighted each other, looming up through the fog, they were almost bow to bow. The pilot on each put his wheel hard over and signaled to go astern, but *Dean Richmond* struck *Mary Powell* on the port side, tearing out some of *Powell*'s joiner work and part of her wheelhouse. The damage was light and both steamboats proceeded on their runs.

While *Mary Powell* was coming up through the Highlands on Friday, 5 August 1910, the crosshead on the piston rod cracked. At the time, she was some distance south of Highland Falls. After the extent of the fracture had been ascertained, Captain Anderson decided to anchor rather than to attempt to make Highland Falls landing and risk a complete break in the crosshead. *Emeline*, coming down on her run from Newburgh to Haverstraw, took off the passengers. Arrangements were promptly made to have *Powell* towed to Hoboken, New Jersey, for repairs and *Chrystenah*, a smaller steamboat often known as the 'Queen of the Lower Hudson,' was chartered to go on the route from Rondout on the following morning. On the northbound trip, because of the usual heavy Saturday afternoon traffic out of New York, *William F. Romer* of the Central-Hudson Steamboat Co. assisted her. By Monday morning, *Mary Powell* was back in service.

[54] The fact that neither smokestack went overboard is confirmed by *The Newburgh Daily News*, 21 June 1899, which described the appearance of *Mary Powell* when she arrived at Newburgh on the evening of the 20th, after the storm.

'Rondout the Last Landing! All Ashore!'

On into the twentieth century, *Mary Powell* continued to perform admirably. The people whom she had served so long and well in her section of the river remained fanatically loyal to her and they expected that she, like the stream on which she plied, would go on forever. To them, she was still and always would be the 'Queen of the Hudson.' But her glory was fading. The river was fast being taken over by newer and finer steamboats.

The Hudson River Day Line itself brought out *Hendrick Hudson* in 1906, *Robert Fulton* in 1909 and *Washington Irving* in 1913. With the coming of this newest piece of floating magnificence, the largest day steamer ever built for service on the Hudson, the Day Line was able to cover its services with the three new boats. *Albany* was now available for a use that it had contemplated for some time, which was to place her on the Rondout run. She was not only more modern than *Mary Powell,* but, with her larger capacity, could better handle the summer business, particularly on Saturdays.[55]

As a step in this direction, arrangements were made to lease from the Cornell Steamboat Co. an unused landing known as the Rat Dock, on the south side of Rondout Creek near Sleightsburgh. In March of 1913, dredging was begun to provide sufficient depth so that both *Mary Powell* and *Albany* could be tied up there when not in use. Captain Anderson objected to the name 'Rat Dock' and suggested to *Mary Powell*'s master carpenter, Albert Benson, that he plant sunflower seeds on it. Mr. Benson did and, when these waxed and bloomed, the landing was rechristened 'Sunflower Dock.'

Mary Powell's regular 1913 season commenced on 27 May. To accommodate the anticipated heavy northbound traffic on Thursday, 3 July, *Albany* left New York in advance of *Mary Powell* for Newburgh, Poughkeepsie and Kingston Point only, while *Powell* covered the regular run to Rondout.

The following Monday, 7 July, *Albany* replaced *Mary Powell,* which was tied up at the Rat Dock,[56] available for excursions and special trips. She entered upon her new rôle almost immediately, making a Union Sunday School excursion to Bear Mountain on 9 July and a moonlight sail from Kingston Point to Newburgh Bay on 11 July.

On 17 July, she was scheduled to make an excursion from Hudson to West Point, but broke her rudder while winding around at Hudson and

[55] Towards the close of the 1912 season, *Albany* made one trip on the route so that it could be determined what changes would be necessary at Rondout to accommodate her for docking and coaling.

[56] The sunflowers had not yet blossomed.

had to be taken across the river to Richard Lenahan's shipyard at Athens for repairs.

On 11 September, *Mary Powell* made an excursion to Albany and on 15 September went back on her old run. The last regular trip was on 25 September and that morning near Crum Elbow she struck an obstruction in the river and stove a hole in her bow. She was able to continue to New York, where a diver was sent down to make temporary repairs so that she could return to Rondout and then deadhead back to New York for dry-docking.

Albany was put on to make the scheduled post-season excursion to New York on 27 September, but made only the down half of it. *Mary Powell* was out of dry dock and ready to bring the excursionists back to Rondout in the afternoon.

The pattern for 1914 was similar, with *Mary Powell* making the Eastman College excursion to New York on 21 May, the spring excursions to Albany and New York on 23 and 25 May respectively, and the first regular trip of the season on 26 May.

Captain A. E. Anderson was making his residence that summer at Greenkill Park Inn outside of Kingston. On Sunday, 12 July, to all appearances he was in excellent health and in the evening joined heartily in the hymns at a song service. The following morning, singularly enough at the hour of 5:30, the sailing time of *Mary Powell* for so many years, he was stricken with apoplexy and died at 9:40 A.M. His funeral was held on the afternoon of 15 July and at 3 P.M., while it was in progress, memorial services were held on both *Mary Powell* and *Albany*.

Powell at that time was off Fort Washington Point, returning to Rondout with the Palisades Park excursion of the Evangelical Lutheran Church. Her engine was stopped and, as her bell tolled mournfully in the summer air, the passengers and crew assembled in the saloon. After the church choir had rendered 'Nearer My God to Thee,' the pastor, Howard E. Snyder, offered a short prayer and spoke briefly of Captain Anderson. Included in these remarks was a reference to the generally prevailing feeling that with his passing would come the passing of *Mary Powell*.

At their annual meeting that year, the directors of the Mary Powell Steamboat Co. spread upon their records a tribute to Captain Anderson, which read in part,

> . . . We hold in pride and regard his wonderful record for ability and straightforward manliness. We have affectionate memory for his consistent life and his kindly, courteous acts. The burden of responsibility for human life in his care he con-

scientiously assumed and carefully executed. Captain Anderson was to the manner born and the responsibilities and stewardship of the properties and position which came by inheritance to him, he administered with the true spirit of noble manhood. He was positive, without obstinacy; just without harshness; and commanding with quiet dignity . . .

. . . the Mary Powell Steamboat Co., through the death of its general manager, Capt. A. Eltinge Anderson, has sustained an irreparable loss . . .[57]

That year *Mary Powell* again closed the regular season on 24 September and made post-season excursions to Albany and to New York on the 26th and 28th respectively.

In 1915, she opened the regular Rondout season out of New York on 1 June. Early in July, she was placed in service in conjunction with the McAllister Steamboat Co.'s route between New York City and Bear Mountain. Under this arrangement, McAllister's *Highlander* left the Battery at 9:15 A.M., West 23d Street at 9:45 and Yonkers at 10:45, while *Mary Powell* left West 42d Street at 10:20 A.M. and West 129th Street at 10:40. On Sundays, when *Mary Powell* did not run, *Newburgh* of the Central-Hudson Steamboat Co. served in her stead. This, of course, was purely an excursion service.

By 8 September, *Mary Powell* had been tied up at the Sunflower Dock. Early that morning, *Albany*, on the regular run to New York, encountered a heavy fog near Crum Elbow. Proceeding under one bell, she struck a rock with her starboard paddle wheel and badly damaged it. *Albany* whistled for assistance and *Homer Ramsdell* of the Central-Hudson Steamboat Co., which was in the vicinity, responded and assisted her into Poughkeepsie, where she discharged her passengers and continued to Hoboken for repairs. *Mary Powell* was hastily made ready and was back in service by afternoon.

Albany was repaired in time to finish the season and make the post-season excursions to New York and Albany.

In 1916, Arthur A. Warrington, *Mary Powell*'s pilot, was officially appointed captain and he and his steamboat received the usual hearty salutes on the first trip of the year, a pre-season excursion to New York on 25 May.

That summer the Hudson River Day Line further utilized *Mary Powell* to offer an additional service, an afternoon boat to Albany on Saturdays only, from 1 July through 2 September. On this run, known as the Saturday Special, she left Desbrosses Street at 12:30 P.M. and, after landing at West 42d Street, West 129th Street, Yonkers, Kingston Point, Malden, Catskill and Hudson, was due in Albany about 10:45 P.M.

[57] As reported in *The Kingston Daily Freeman*, 22 December 1914.

On the morning of 24 May 1917, *Mary Powell* was brought from her winter berth at the Sunflower Dock to the Day Line coal pocket at Rondout to coal up in preparation for her trial trip. At noon on the 29th, she left for New York to make a Decoration Day excursion from there to West Point, and on 5 and 7 June ran special excursions from Rondout to New York, primarily for those who wished to hear 'Billy' Sunday preach, but also for those who simply enjoyed a trip to New York.

Regular service was not scheduled to begin that year until 11 June out of New York and it is believed that *Mary Powell* ran on the route until about 22 June. From 30 June through 1 September, she was again used on the Saturday Special. That year Yonkers and Malden had been eliminated and she was due at Albany at 10:30 P.M.

On 5 September 1917 she made her last trip for that year and, although it was not known at the time, the last run that she was ever to make.[58] *Albany* made the final sailing on the regular service on 15 September and, again although it was not known at the time, when she tied up at Rondout that night, a route which had survived in all of its essentials for sixty years had ended forever.

What came to be the last vestiges, the post-season excursions to New York on 19 September and to Albany on 21 September, were made as usual.

The Rondout line had, of course, seen its best days. *Albany*'s withdrawal from it was made necessary by the fact that in 1918 the Day Line decided to reap the great additional profits available by operating on Sundays and needed her as a relief boat. The continuation of Rondout service with the elderly *Powell* was not part of the company's plan and her permanent retirement, rumored on and off since 1910, was now to become a fact.

In the spring of 1918, she was partially painted, but remained laid up at the Sunflower Dock all during the year. 1919 found her still there—a lonely steamboat indeed. Her decks were quiet now. No hubbub of passengers, no notes of bells from the engine room, no cheerful call for the next landing arose to break the stillness. Gone was the throbbing life which she had known for over half a century. Gone for years were the men associated with her in the days when, with a rainbow of spray on her bow and a white wake tumbling astern, she had sailed between the Hudson's green hills, through the Highlands at the gloaming, to a fame at first regional and then national and international. The Andersons, Betts and Bishop, Lawrence and Hayes, Major Cornell and a host of others—all were gone. *Mary Powell* had survived them and had survived even her route. No morning boat from Rondout was left to comfort her.

[58] From information from Elwin M. Eldredge.

Eventually, she was advertised for sale by sealed bids and in the fall of 1919 was sold to Rubin Cohn of the Hudson Valley Waste & Metal Co. of Poughkeepsie and Israel Levinson of the Newburgh Iron & Metal Co., with the stipulation that she would not be used for the making of a motion picture or for further service as a passenger or freight boat on the Hudson River.[59] Prior to this, the Hudson River Day Line had removed her whistle, which was subsequently installed as the main whistle on *Robert Fulton,* and her bell, which was later erected at Indian Point Park.

Messrs. Cohn and Levinson had hopes of reselling *Mary Powell* for further service in the south. As an alternative, they planned to break her up. Although they were unsuccessful in their anticipated sale, they did resell her the following April to John A. Fischer, of Kingston, with whom was associated his brother, Charles E. Fischer.

The Fischers engaged the Cornell Steamboat Co. to move *Mary Powell* from the Sunflower Dock to the Harcourt & Terry wharf at South Rondout, about 2 miles from the mouth of Rondout Creek, and on 20 April 1920 she sailed her last in tow of the tugboat *Rob.*

John A. Fischer, in his turn, also attempted to resell *Mary Powell* and then set to work dismantling her. While engaged in this work, he found that he had a ready market for many parts of the steamboat which people were interested in acquiring primarily for sentimental reasons.[60]

After the boilers, engine and most of the joiner work had been removed, *Mary Powell* was run up onto the mud flats on the upper side of the Harcourt & Terry wharf and there settled down to a long career of slowly rotting away. Her grave is marked, for close at hand stands a small cottage erected from her joiner work and adorned by the name plate from the front of the pilothouse.

Her stacks lay nearby until 1938, when they were sold, and her walking beam, which had found a berth in the mud near the hulk, was not removed until 1947. In that year the lighter *William S. Keeler,* then engaged in salvaging metal from old hulks, came in the creek and in the course of her activities, in June, proceeded to haul out the beam and to strip from the hulk itself what little metal was worth removing.

One may visit the Anderson family plot in Montrepose Cemetery, Kingston, where are buried Captains Absalom L., A. Eltinge and Jansen H., and then, after a walk of but a few minutes, come to a point on a hill overlooking the final resting place of *Mary Powell.* Not even death has separated her by far from those who loved her well.

[59] Ibid.

[60] Amongst the material thus preserved were the lunettes from the wheelhouses. One of these was recently presented to the Senate House Museum in Kingston, which has an interesting collection of *Mary Powell* items, including the pilot wheel.

Appendix I

Theron Skeel, M.E., prepared a paper entitled 'An American River Steamer—Performances of the Mary Powell,' which appeared in *The Iron Age,* XXI (No. 21, 23 May 1878), pp. 1 and 3. The author, described (p. 15) as a 'clever young engineer,' died a short time before the appearance of his article, from which the following figures are taken.

Length: on waterline, 286′; over all, 294′.
Beam: at waterline, 34′3″; over all, 64′.
Depth of hold, 9′; height from main to promenade deck, 10′; height from promenade to upper deck, 8′; upper deck of ⅝″ pine.
Draft with mean load of passengers and coal, 6′; displacement (estimated), 28,000 cu. ft.; midship section (estimated), 200 sq. ft.; projected area of surface resisting head wind, 2,000 sq. ft.
Boilers, two, of direct flue and return tubular type. Figures for one boiler: over all length, 26′; diameter of cylindrical shell, 10′; width of fire box, 11′; two furnaces —length of ea., 8′; direct flues, 9′1″ length—two 9″ diameter, two 14″ and six 16″; grate surface, 76 sq. ft.; tubes, 80—16′6″ length, 4½″ external diameter.
Paddle wheels: diameter over tips of buckets, 31′; fixed buckets per wheel, 26; buckets—10′6″ length and 1′6″ width. Greatest immersion of outer edge of bucket at mean draft, 3′6″.
Passengers: average number, 250; fare per mile, 1¼ cents.

Observations, given as . . . for 1875, 12 for 1876 and 27 for 1877, showed the following:

From Newburgh to New York or return—
Running time in minutes, with deduction of time lost at landings: 1875, 185.5; 1876, 187.5; 1877, 182.
Speed in miles per hour, based on 60 miles: 1875, 19.3; 1876, 19.2; 1877, 19.8.
Revolutions per minute: 1876, 21.8; 1877, 21.77.
Revolutions per round trip from Rondout to New York and return: 1876, 13,100; 1877, 12,190.
Coal consumption per revolution, in pounds: 1876, 4.57; 1877, 4.37.

Amongst the mean results for 1877 were these. Coal consumption per hour, 5,970 pounds; steam pressure in boilers (pounds per sq. inch above atmosphere), 28; steam pressure in cylinder (pounds per sq. inch above zero) at beginning of stroke of piston, 40; do. (do.) at point of cut-off, 31.2; do. (do.) at end of stroke, 16.4; point of cut-off, fraction of stroke, 0.47; vacuum (inches of mercury), 25. Horsepower: total, 1,899; indicated, 1,540; net, 1,446.

Chief Engineer B. F. Isherwood, U. S. Navy, in preparing his 'The American River Paddle-Wheel Steamboat "Mary Powell" ', which appeared in *Journal of the Franklin Institute,* CVIII (No. 1, July 1879), pp. 18-27, used information that had been supplied to him by Mr. Skeel, but many of the figures which he gives differ slightly from those presented by Skeel in his own paper. Isherwood included these dimensions: length on load waterline from forward edge of rabbet of stem to after edge of sternpost, 290′; extreme breadth on load waterline, 34′; depth from load

waterline to lower edge of rabbet of keel, 6′; depth of keel below lower edge of its rabbet, 6″.

The figures listed below are from *Marine Engineering*, August, 1904, after the overhaul of 1903-04.

Length: between perpendiculars, 286′; on load waterline, 288′9″; over all, 300′.
Beam: molded, 34′4″; over guards, 64′.
Draft, mean, 6′; displacement, about 800 tons; midship section, 170.5 sq. ft.
Boilers, two, tubular. Figures for one boiler: length, 27′; diameter, 10′8″; width of front, 11′6″; flues, 10′10″ in length—two 12″, two 15″, four 16″, two 18″; grate surface, 78 sq. ft.; tubes, 80—10′ length, 5″ diameter; working pressure, 45 pounds.
Paddle wheels: outside diameter, 31′ 9″ (reduced from 33′); fixed buckets per wheel, 26; buckets—10′6″ length, 15½ sq. ft. face.
Horsepower, indicated: 1,560.
Passenger capacity: 1,700.

Mary Powell carried 6 sets of boilers. The years given are for the seasons between which new boilers were installed, followed by the material and the builder.

Original—iron—Fletcher, Harrison & Co. (?)
1866-67 —iron—John Dillon, Rondout, N. Y.
1872-73 —steel—Alexander Cauldwell, Newburgh, N. Y.
1880-81 —steel—McEntee & Dillon, Rondout, N. Y.
1890-91 —steel—McEntee & Rodie, Rondout, N. Y.
1903-04 —steel—Townsend & Downey Shipbuilding & Repair Co.

Following the installation of the 1872-73 pair, jets were installed in the stacks to replace the blowers, but were found unsatisfactory. Prior to the 1874 season, they were removed, the stacks lengthened and the old blowers reinstalled.

Appendix II

The following notes pertaining to *Mary Powell*'s landings and schedules, while they do not pretend to be complete, may be of interest and of use in approximating the period of the many undated timetables of the steamboat.

Landings:

Rhinecliff—East bank, opposite mouth of Rondout Creek. Experimental northbound landing for discharging passengers for that side of the river from mid-July to early August, 1862.
Hyde Park—East bank. Added as a landing in the 1870's, one half hour out of Rondout, southbound, and one half hour out of Poughkeepsie, northbound. In later years, only a summer landing. Discontinued after 1901 season.
Esopus—West bank. Substituted for Hyde Park as a summer landing, 1902-04.
New Hamburg—Usually spelled New Hamburgh on *Mary Powell* timetables. Not a landing during 1871 season.
Cold Spring—East bank. Landing, 1862-65 (with interruptions).
West Point—Often made only until mid-September.

Cozzens'—Landing for Cozzens' Hotel. After the property changed hands, landing in 1882 and thereafter was called Cranston's. In 1902, landing became Highland Falls—the name of the nearby village. Discontinued after 1915 season.

Bear Mountain—West bank. Northbound landing in 1915, 7 July-4 Sept. Regular landing, both ways, 1916-17.

Grassy Point—West bank. Landing in 1862 until latter May. Discontinued thereafter.

Yonkers—East bank. Summer landing, northbound, 1914-15. Regular landing, northbound, 1916-17.

New York—Terminus: Jay St., 1862-64; Desbrosses St., 1865-69; Vestry St., 1870-89; Desbrosses St., 1890-1917. 'Up-town' landing: W. 34th St., 19 Sept. 1870 until close of that season; W. 24th St., 1880; W. 22d St., 1881-1904; W. 42d St., 1905-17. Additional ldg.: W. 129th St., 1902-04, northbound, Sat. and holidays only; 1905-17, regular landing.

Changes in time:

Rondout departure—Usually in September, as the days grew shorter, 5:30 A.M. sailing was put back one half hour to 6 A.M., with these exceptions: 1866-68, New York sailing advanced to 3 P.M. instead. 1869, apparently no change. 1870, New York sailing from Vestry St. advanced to 3 P.M. 1871, no change. 1883-87, no change. 1888, 6:30 A.M. 1900-03, 6:30 A.M. 1904-14, regular sailings, all season, 6 A.M. 1915-17, regular sailings, all season, 7 A.M.
In 1871, early season sailings for about 2 weeks were made at 5:15 A.M.

New York arrival and departure—From 1862-66, arrival time was 11 A.M. Thereafter, it varied between 'about' 10:30 A.M., 11:00 A.M. and 10:45 A.M. through 1879. Sailing time, 1862-79, was 3:30 P.M., with late season exceptions noted above. Changes then became effective as ff.:

1880: Ar. 24th St. (22d St. 1881 and ff.), 10:30 A.M.; Vestry St., 10:40 A.M. (later changed to 10:50 A.M.)
Lv. Vestry St., 3:10 P.M.; 24th St., 3:30 P.M.

1881: Lv. Vestry St., 3:20 P.M.; 22d St., 3:30 P.M.

1882: Lv. Vestry St. (Desbrosses St., 1890 and ff.), 3:15 P.M.; 22d St., 3:30 P.M.

1886: Commencing 19 June, with growing popularity of Saturday half-holiday, Saturday sailings advanced one hour.

1888: Ar. 22d St., 10:45 A.M.; Vestry St. (Desbrosses St. 1890 and ff.), 11:10 A.M.

1890: Saturday sailings again advanced. Lv. Desbrosses St., 1:45 P.M.; 22d St., 2 P.M.

1904: Ar. 22d St., 11:15 A.M.; Desbrosses St., 11:40 A.M.

1905: Ar. 129th St., 11:00 A.M.; 42d St., 11:20 A.M.; Desbrosses St., 11:45 A.M. Lv. Desbrosses St., 3:10 P.M. (Sat., 1:45 P.M.); 42d St., 3:30 P.M. (Sat., 2:00 P.M.); 129th St., 3:50 P.M. (Sat., 2:20 P.M.)

1907: Saturday sailings made regular sailing time, Monday through Saturday.

1915: Ar. 129th St., 11:55 A.M.; 42d St., 12:15 P.M.; Desbrosses St., 12:45 P.M.

This last change resulted in a layover of only one hour at Desbrosses St.

Rondout arrival—Since there was no set schedule on the northbound run, except in the last years of the route, this was an average time only. In the early years, it was considered to be 8:20 P.M., and then 8:30 P.M. through 1901. From 1902-06 it was 8:45 P.M. and thereafter, 7:45 P.M. During the period of the early Saturday sailings, it was, of course, earlier on that day.

Acknowledgments

For their considerable assistance in the preparation of this article, I extend my thanks to the following:

Mr. Elwin M. Eldredge, of Clermont, New York, for making available both his own voluminous file on *Mary Powell* and his unexcelled collection of pictures of the steamboat, and for reading the draft of the manuscript.

Mr. Forrest R. Holdcamper, of Washington, D. C., for supplying all of the information presented from enrollments in The National Archives.

Capt. William O. Benson, of Sleightsburgh, New York, for access to his collection of material on Hudson River steamboats.

Mr. W. duBarry Thomas, of Woodstock, New York, for assistance in checking portions of the manuscript and for other aid.

Miss Mary A. Schaeffer, librarian, and Miss Sarah Townsend and Mrs. Isabelle Hayden, assistant librarians, of the Kingston City Library, for their coöperation over the long period during which I have used the newspaper files in their custody.

Miss Dorothy C. Barck, librarian, and the staff of the library of the New-York Historical Society.

Bibliography

Numerous accounts of *Mary Powell* have been written, but, understandably, into many of them there has been woven much of lengendary character. For that reason, since this article was an attempt to arrive at the facts, it was felt best to go back to the newspapers as the most suitable fount of information. Of them all, those of Rondout and Kingston kept closest watch over *Mary Powell* through the years. Therefore, unless otherwise indicated, the material presented was gleaned from the files of the following newspapers, in the Kingston City Library, Kingston, New York.

Rondout, N. Y.:

Rondout Courier	1848-54, 1856-69
Rondout Daily Freeman	1871-72

Kingston, N. Y.:

Ulster Republican	1839-61
Kingston Argus & Ulster Republican	1861
Kingston Argus	1861-73
Democratic Journal	1840-45
Kingston Democratic Journal	1845-68
Kingston Journal	1868-73
People's Press	1861-63

Kingston Press	1863-73
Daily Freeman	1872-78
Kingston Daily Freeman	1878-1921
Kingston Daily Leader	1881-1905

In addition, many items were further checked against files of:

Poughkeepsie Daily Eagle	(Adriance Memorial Library, Poughkeepsie, N. Y.)
Newburgh Daily News	(Newburgh Free Library, Newburgh, N. Y.)
Newburgh Daily Journal	(Do.)
New York Herald	(New York State Library, Albany, N. Y.)
New York Times	(Do.)

Because of changes in the mastheads through the years, *The* has not been used in the above listing.

Donald C. Ringwald, an enthusiastic student of the history of American steam navigation, is an authority on and the author of a number of articles on steam vessels of the Hudson River. He has pointed out an error in the first part of this article. In the third sentence of the penultimate paragraph of Part I, the words 'about three feet apart' should be deleted.

Documents

Instructions to Captain John Green, Commander of the *Empress of China*, for the First Voyage to China of a Ship Carrying the American Flag

When the 'Journal of the Ship *Empress of China*' was published in The American Neptune (April, July, October, 1950; January, April, 1951; X, 2, 3, 4; XI, 1, 2) there could have been no better introduction than the instructions to her commander, Captain John Green. Unfortunately they had not then been located. They have since been found and are now the property of Carrow Thibault, of Ardmore, Pennsylvania, Captain Green's great-great-grandson. Mr. Thibault has graciously permitted the instructions to be printed, just as he granted similar permission for the publication of Captain Green's journal of the first voyage to China by a vessel carrying the American flag. The instructions, in the handwriting of and signed by Daniel Parker, agent and part owner, provide fresh information regarding this pioneer venture to far Canton.

To John Green Esqr Captain in the Navy of the United States, and now Commanding the private Merchant Ship, called the Empress of China; bound on a Voyage from the port of New york, to the port of Canton and from thence to return to the port of New york.—The following Instructions are given on the part and behalf of the Owners of the said Ship.—

It being of very great Consequence to arrive in Canton before any other Vessel which can go from Europe with fresh Ginseng, every attention has been paid, as you know, to procure a Ship particularly calculated, both for fast sailing and to encounter rough Weather, and as She has upon severe experiment, in her very Stormy passage from Boston to New york proved equal to both these Objects;[1] is well maned and found agreeably to your own wishes; it is expected from your Diligence, and attention that your passage will be very short. In order that you may not be under a Necessity of waiting for the Westerly Monsoons you will run down your Longitude in the high Latitudes, and for this purpose you will make all expedition from New york to the Cape De Verd Islands; thence keeping as well to the Eastward as circumstances will permit, you will run Southward to the Latitude of forty Degrees South, and keep in that Latitude Eastward as far as the Island of St Pauls; thence Eastward & Northward to the Island of Clote, thence to the Island of Java being carefull to make this Island sixty leagues to the Westward of Princes Island, lying in the mouth of the Streights of Sunda, and proceed thence thro' the Streights of Sunda to Macao, the Charts of that coast with Dunns directions, herewith delivered to you, will afford usefull matter of instruction on the Subject.

It is expected that you will go on the whole voyage without putting into port, for as your Vessel is very Stout and Sheathed with Copper, and there is no doubt of your own and your Officers care and Attention, it is conceived that (Extraordinary accidents excepted) nothing but sickness among your people can Necessitate you to seek a port. Your Owners have provided you with a Skillfull and attentive Surgeon,[2] who has had long experience, and therefore it is presumed, that if the due attention be paid to keeping your Ship Clean and sweet and your Crew well fed & well employed, they will avoid the Diseases which Sometimes happen in long Voyages; But as unforseen accidents may Oblige you to seek a port, You will as Circumstances shall direct, either [page 2] Either go to the Cape of Good Hope, the Island of Mauritius, or some convenient port in the Island of Java: You have Letters both from the French and Dutch Ministers here, which will Secure you a friendly reception in the Ports of their respective Nations.

When in port you will be under the directions of Samuel Shaw Esquire or in case of his death Thomas Randall Esquire, who are appointed Supercargoes of the Ship and who will provide and pay for such repairs or other articles as may be needfull, but in all such cases we recommend to you as well as to them, the strictest regard to Oeconomy, for we hope not only this present Voyage may turn out to such profit as to prompt a new expedition of the same kind, but that you yourself may both give and receive such Satisfaction as by your own desire, to be employed in it again. Your care and attention to the discipline and health of your men is not to be intermitted either at Sea or in port; particularly the latter, for you

[1] This statement may provide a clue as to where *Empress of China* was built. In Josiah Quincy, *The Journals of Major Samuel Shaw* (Boston, 1847), p. 133, it is merely stated that 'a ship was purchased.'

[2] Dr. Robert Johnson.

know that Seamen are most likely to be debauched when in port, and that the rivers of warm Climates are unfavorable to health. You will stay at Macao or proceed onward according to the orders you shall receive from your Supercargoes, to whose direction this is confided, and they are instructed to assist you in the disposition of your property to the best advantage, which we doubt not may be Usefull; as the Chinese are very great rogues, and you will not have the Same good Opportunities of dealing with them.

This instruction is intended also for the benefit of your Officers as well as of yourself, Should they or you incline to take advantage of it.

The Supercargoes will be furnished with Documents as to the stowing your return Cargo which they will communicate, & you and they will adopt the best means for doing that business well. For this purpose you will also as occasion Offers, make Observations and Enquires.

Voyages like the present are attended with great expence, it is therefore highly important to the Owners to make use of all the room in the Ship which can with any convenience be Stowed. They have been liberal in the allowance of Forty Tons priviledge to you & your Officers, and they expect this conduct on their part will meet a Suitable return on yours; which your Integrity of Disposition gives every reason to rely on. You will therefore take on board as much goods as the Ship will hold, and it will be better to touch at the Cape of Good Hope for Provisions & Water on your return if Needfull, than by the Quantity of those things to prevent the Ship from bringing as much as She otherwise might. You will sail from China as soon as circumstances will permit, and of those Circumstances your Supercargoes [page 3] Will be best able to judge—whose orders you will Obey, but upon the time of your sailing, must depend the route which you are to take, and therefore Nothing shall be said on that subject. You will use your Discretion, for your Interest & that of your Owners is intimately connected and indeed the same. Other expeditions are fitting out on the same errand and it is clear that the Vessel which first arrives in this Country will come to the best market provided always that her Commodities are good. No Vessel that can be sent has in this respect equal advantages with yours, for you will probably arrive in China by the begining or at most the end of May. If you should get your Cargo on board so as to come away by the beginning or even the End of August and return by the same route as you go, you will be able, after stoping at the Cape, to get back to New york by January,[3] or if you should not be able to leave China untill after the easterly Monsoons set in or even as late as the end of November, Your Ship being so good a Sailor will doubtly arrive before any other Vessel.

It is earnestly recommended to you as well on board as on Shore to cultivate the good will & friendship of all those with whom you may have dealings or Connections. You will probably be the first who shall display the American Flag in those distant regions, and a regard to your own personal honor will induce You to render it respectable by integrity and benevolence in all your Conduct and dealings; taking the proper precautions at the Same time not to be yourself imposed on.

So soon as you shall arrive at New york, you will announce your arrival to your Owners or their Agent; and you will take very particular care that no article whatever be landed untill you shall receive their further Orders.

You have delivered to you herewith not only the declaration of Independence, but Copies of the Several treaties made with the different European powers, and also a Sea Letter from this State Signed by the Governor thereof You will shew these things as Occasion may require and avoiding all Insult to others you will consult your own Honor & that of the Country whose Commission you bear; if any are offered to you.

We heartily wish You a Secure & prosperous Voyage & recommend you to the protection of Heaven

Danl Parker, for himself and
Owners of the Ship Empress of China

Dated, New York January 25 1784.

[Endorsed] Capt Green's Orders
Jan'y 25th 1784

[Autograph letter signed, 3 pp., in possession of Carrow Thibault, Ardmore, Pennsylvania.]

Contributed by William Bell Clark

[3] Parker was over-optimistic. *Empress of China* arrived at Macao 23 August 1784; sailed from Wampoa 28 December, and arrived at New York 11 May 1785, THE AMERICAN NEPTUNE, XI (1951), 70, 135, 144. Even four months after the expected time she proved the first to reach an American port.

BIBLIOGRAPHY

Recent Writings in Maritime History

BY ROBERT GREENHALGH ALBION

THESE bibliographies include all pertinent books and articles in English, except for articles in THE AMERICAN NEPTUNE itself. For further comments on their scope see XII, 64-65 (January 1952), XII, 297 (October 1952) and XIII, 215-216 (July 1953).

In this issue, it has seemed desirable to include the titles of all pertinent unpublished American and British Ph.D. theses since 1945, not already noted. While these are not easily available to the general reader, it is important that anyone undertaking substantial research on a subject should be aware of what has already been done. In the annual issues of H. W. Wilson Company's *Doctoral Dissertations Accepted by American Universities,* edited by A. H. Trotter and Marian Harman, one can learn what theses are available through inter-library loan or on microfilm. The British titles, including a few masters' theses, are given in the annual *Bulletin of the Institute of Historical Research, Thesis Supplement,* issued by the University of London. It is probable that arrangements could be made for microfilms of these theses, or at least of their bibliographies.

Abbreviations: *D&HA, Dock and Harbour Authority; JASNE, Journal of the American Society of Naval Engineers; MCF, Maine Coast Fisherman; PLA, PLA Monthly* (Port of London Authority); *S&S, Ships and the Sea; S&SR, Shipbuilding and Shipping Record; SBF, Steamboat Bill of Facts; USNIP, United States Naval Institute Proceedings.*

All dates 1954 unless otherwise indicated.

I. *General*

ANDERSON, JACK, & BLUMENTHAL, FRED, For Sale: Torpedoed Treasure, 3 pp. *Parade,* 6 June. 'Millions of dollars worth of cargo, sunk in World War II, awaits the highest bidder.'

ARDEHALI, ALI, *The Suez Canal: Its History and Economic Development.* MS. Ph.D. thesis, Clark Univ., Worcester, 1952.

BAKER, T. E., *Contraband of War.* MS. Ph.D. thesis, Harvard, 1947.

BATHURST, J. N., RN, Underwater Television, 6 pp. *D&HA,* June. Application to marine salvage and repair of damage to ships and structures, stimulated by search for and survey of sunken submarine HMS 'Affray' by HMS 'Reclaim' in 1951. Also in *Trident,* May, 2 pp.

BOMBARD, ALAIN, *The Voyage of the 'Heretique,'* 214 pp. $3.50. New York, Simon & Schuster. 'For 65 days and nights, from the Canaries to the West Indies, he was alone ... living only on the fish and birds he could catch and eat raw and the liquid he could get from the sea and the sky.'

BRANDON, MICHAEL, Sovereign Immunity of Government-Owned Corporations and Ships, 38 pp. *Cornell Law Quarterly,* Spring.

BROWNBACK, P. E., *The Acquisition of the Nicaragua Canal Route: the Bryan-Chamorro Treaty.* MS. Ph.D. thesis, Univ. of Pa., 1952.

CALLAGHAN, JAMES, Oil Pollution of the Sea, 7 pp. *Geog. Mag.,* May.

CIO's Joe Curran, AF of L's Harry Lundeberg. *Fortune,* March. American maritime labor leaders.

COUSTEAU, J.-Y., To the Depths of the Sea by Bathyscaphe, 13 pp. *Nat. Geog.,* July. 'In the French Navy's Balloon of the Deep, Marine Explorers enter a "Puree" of Living Creatures ... in the Eternal Night of 4,000 Feet.' See also Houot below.

DIOLE, PHILIPPE, *Four Thousand Years Under the Sea,* tr. from the French by Gerard Hopkins, 251 pp. $4.50. New York, Messner. Modern marine archaeological explorations in the Mediterranean, which have brought to light fragments of ancient civilization.

EDWARDS, GILLESPIE, Hong Kong Harbour Havoc, 7 pp. *Sea Breezes,* May. Terrific destruction from typhoon on 18 Sept. 1906: 'No fewer than 48 fair-sized steamers were driven ashore and a few liners shared the same fate; there were 25,000 known deaths.'

From Judicial Grant to Legislative Power: the Admiralty Clause in the Nineteenth Century, 24 pp. *Harvard Law Rev.,* May.

ELLACOTT, S. E., *The Story of Ships,* 78 pp. $2.50. New York, Roy.

GIBBS, RAFE, Guarding the Graveyard of Ships, 6 pp. *Popular Mechanics,* May.

A Glance at Marine Casualty Investigations, 1 p. *Proc. Merchant Marine Council,* Feb.

GOLDBERG, J. P., *American Seamen; a Study in Twentieth Century Collective Action.* MS. Ph.D. thesis, Columbia, 1951. Available in microfilm. See also Lampman and Larrowe below.

History of the Development of the Life Preserver, 3 pp. *Proc. Merchant Marine Council,* June.

HOGARTH, J. W., Elba Recovery, 2 pp. *Trident,* June. Salvage of BOAC plane that sank without trace off Elba 10 Jan.

HOUOT, G. S., Two and a Half Miles Down, 7 pp. *Nat. Geog.,* July. 'Even at the Greatest Depth in the Sea Ever Reached by Living Men, the Bathyscaphe's Crew Finds Abundant Signs of Life.' See also Cousteau above and Kenneth MacLeish, A Vertical Voyage to the Bottom of the Sea, 6 pp. *Life,* 27 Sept.

HULT, R. E., Death Trap of the Great Black Drift. *S&S,* Summer. Stories of derelict junks since 1613 in the Japanese Current, moving in a circular motion thousands of miles east of Japan; 'choked with seaweed and other flotsam, it flows at speed varying from 3 to 30 knots ... Helpless vessels are all too often caught in the relentless flow.'

KNAUTH, A. W., Aviation Law and Maritime Law, 14 pp. *Chicago Bar Record,* Feb.

LAMPMAN, R. J., *Collective Bargaining of West Coast Sailors, 1885-1947; a Case Study in Unionism.* MS. Ph.D. thesis, Wisconsin, Madison, 1950.

LARROWE, C. P., *The Shape-Up and the Hiring Hall.* MS. Ph.D. thesis, Yale, 1952.

Marine Reporting a Complex Affair. *New York Times,* 13 June, v. 9. Workings of Maritime Assn. of the Port of New York, established 1873, in conjunction with Lloyds, etc.

MOXLEY, S. H. S., Knots Per Hour, 1 p. *Mariner's Mirror,* May. Lists several writers including naval officers who used the often-questioned phrase.

Official Logbooks or Unofficial Notebooks, 6 pp. *Proc. Merchant Marine Council,* Jan. Analysis of laws and regulations on subject.

The Oilman and the Sea, 2 pp. *Time,* 5 July. Offshore drilling for oil.

PENRY-JONES, J., How Ships are Marked, 3 pp. *Trident,* June. Draft marks, load lines, etc.

SCHWARDT, H. H., The Teredo—Malevolent Clam, 3 pp. *Motor Boating,* July. 'That pesky and hungry shipworm that riddles your keel ... is not a worm at all. The marine biologists say he is just a misguided clam.'

SHAW, F. H., Neptune's Brotherhood, 3 pp. *The Seafarer,* April. History of 'crossing the line' ceremony.

SHERROD, ROBERT, The Grim Facts of the H-Bomb Accident, 7 pp. *Saturday Evening Post,* 7 July. Detailed account of 'Lucky Dragon' episode, some 75 miles from Bikini. See also Dwight Martin, *Life,* 29 March (XIV, 219), and Bill Stapleton, Sect. XIII.

SOULE, G. B., Diving Historian finds Spanish Treasure, 6 pp. *Popular Science*, May.

TIISA, ENSIO, *Raft of Despair*, 200 pp. 10s 6d. London, Hutchinson. Two Foreign Legionnaires en route to Indo-China dropped overboard from troopship in Straits of Malacca; their small raft was swept into the Indian Ocean and eventually the sole survivor, a Finn, was picked up by a British ship.

WOODBURY, GEORGE, *The Great Days of Piracy*, 232 pp. 15s. London, Elak. 'The author has not drawn much on original sources.'

II. *Exploration, Navigation, Cartography, Oceanography*

BRADFORD, GERSHOM, Oceanic Wind Systems, 9 pp. *Rudder*, May-June.

CASWELL, J. E., *United States Scientific Expeditions to the Arctic, 1850-1909*. MS. Ph.D. thesis, Stanford, 1952.

DAY, A., RN, Man and Machine in Navigation, 8 pp. *Jour. Institute of Navigation*, Jan. By the Hydrographer of the Royal Navy.

DIGBY, PETER & VI, *Beyond the Pack Ice*, 186 pp. 15s. London, Henkins. 'Scientific research on marine plankton from the east coast of Greenland.'

ELLIOTT, F. E., *Physical Types and Regional Pattern of the Marine Surface Waters of the Earth*. MS. Ph.D. thesis, Clark Univ., Worcester, 1952.

HAHN, JOHN, Laboratory of Oceanography is Dedicated at Woods Hole Institute. *MCF*, Aug.

(HYATT, ALPHEUS), Excerpts from Alpheus Hyatt's Log of the 'Arethusa,' ed. J. B. Burbank & R. W. Dexter, with an introduction by Harriet Hyatt Mayn, 32 pp. *Essex Inst. Hist. Coll.*, July. Biologist, who established Annisquam Seaside Laboratory, built 58-foot schooner in which he sailed to Anticosti Island and Labrador in 1881 for marine dredgings.

LEWIS, OSCAR, *George Davidson: Pioneer West Coast Scientist*, 146 pp. $3.50. Berkeley, U. of C. Press. Davidson, active for many years in the U. S. Coast Survey and author of the *Pacific Coast Pilot*, is said to have 'helped more than any one man to make travel by water safe along the coast.'

MACDONALD, A. E., The Maps that Charted Our History, 5 pp. *Macleans*, 1 March. Collection, showing the 'slow evolution of Europe's knowledge about Canada.'

MIRSKY, JEANETTE, *Elisha Kent Kane and the Seafaring Frontier*, 201 pp. $3.00. Boston, Little, Brown.

MITTERLING, P. I., *United States Exploration in the Antarctic, 1789-1842*. MS. Ph.D. thesis, Columbia, 1953. Available in microfilm.

MINOT, FRANCIS, The Oceanographic Research Vessel, 2 pp. *S&SR*, Internat. Design & Equipment Issue.

Modern Aids to Navigation, 3 pp. Ibid.

RICH, E. E., & JOHNSTON, A. M., *John Rae's Correspondence with the Hudson's Bay Company on Arctic Exploration, 1844-1855* (Publications of Hudson's Bay Record Soc.), 401 pp. Issued only to members of the Society, London, 1953.

ROBERTS, LYNETTE, *The 'Endeavour.' Captain Cook's First Voyage to Australia*, 280 pp. 16s. London, Peter Owen. Attempt to retell the events of Cook's first voyage by using extracts from the journals as spoken words.

ROMER, MARGARET, The Undersea World, 4 pp. *S&S*, Fall. Work of the Scripps Institution of Oceanography, La Jolla, California.

SKELTON, R. A., Captain James Cook as a Hydrographer, 28 pp. *Mariner's Mirror*, May. Contains considerable data on the elusive subject of the state of hydrography in the mid-18th century.

SOLVER, C. V., Discovery of an Early Bearing-Dial. *Jour. Institute of Navigation*, July 1953. Account of discovery in Greenland in 1951 of what appeared to be a 32-point Norse bearing-dial of *c.* 1200. Critical comments on article, 6 pp. Ibid., Jan. 1954, by E. G. R. Taylor, W. E. May, RN, R. B. Motzo, and T. C. Lethbridge.

TAYLOR, E. G. R., Jean Rotz and the Variation of the Compass, 1542, 8 pp. Ibid., Jan.

VETTER, R. C., New Frontiers in Oceanography, 9 pp. *Army Information Digest*, July. Author is oceanographer in the Earth Sciences Division, Office of Naval Research.

WAIT, G. B., Is Radar to Blame? *The Log*, May. Analysis of accidents, taking exception to conclusions of E. S. Quilter, USN, in his 'Safety at Sea Demands New Radar Rules Now.' Ibid., Oct. 1953.

WOOD, ALEXANDER, & OLDHAM, FRANK, *Thomas Young, Natural Philosopher, 1773-1829*, 355 pp. $6.00. Cambridge University Press. Ch. 14, 'Nautical Almanac and Board of Longitude.'

WYLIE, F. J., A Survey of Five Years' Progress in Marine Radar, 21 pp. *Jour. Institute of Navigation*, Jan. Includes 19 references to other writings on the subject.

III. *Merchant Sail and General Shipping—North America*

ADOLF, L. A., *The Operation of the English Navigation System in Colonial Pennsylvania, 1681-1750, a Case Study*. MS. Ph.D. thesis, Univ. of Washington, Seattle, 1953.

BAILYN, BERNARD, Communications and Trade: The Atlantic in the Seventeenth Century. *Jour. Econ. Hist.*, Oct. 1953.

BORNHOLT, L. A., *Baltimore as a Port of Propaganda for South American Independence*. MS. Ph.D. thesis, Yale, 1945.

BROWN, GENEVIEVE, *The Illicit Slave Trade to Cuba and the other Islands of the Caribbean*. MS. Ph.D. thesis, Ohio State, Columbus, 1945.

COAKLEY, R. W., *Virginia Commerce during the American Revolution*. MS. Ph.D. thesis, Virginia, Charlottesville, 1949.

DODGE, E. S., see Sect. XIV.

Famous Ships of the Port of New York, *Via Port of New York:* The Audacity of Captain Dean—The 'Experiment' (1785-87), Feb.; The Reserved-Seat Naval Battle—'L'Embuscade' (1793), March; Captain Freeman's 'Interrupted' Voyage—The 'Ambition' (1805), April; A Headless Helmsman Stirs a City—The 'Richard' (1806), May; The Man who Did Not Invent the Steamboat—The 'Clermont' (1807), June; A Bunker Hill of the Ocean—The 'General Armstrong' (1814), July.

GARES, A. J., *Stephen Girard's West Indian Trade from 1789 to 1812*. MS. Ph.D. thesis, Temple, Philadelphia, 1947.

GREGORY, F. W., *Nathan Appleton, Yankee Merchant, 1779-1861*. MS. Ph.D. thesis, Radcliffe, 1949.

HIRD, W. I., When the 'Madalan' Sails for the Cape Verdes, 2 pp. *S&S*, Summer. Annual voyage of brigantine from Providence, R. I.

HUNTLEY, F. C., *Trade of the Thirteen Colonies with the Foreign Caribbean Area*. MS. Ph.D. thesis, California, Berkeley, 1949.

JENSEN, A. L., The Inspection of Exports in Colonial Pennsylvania, 23 pp. *Pa. Mag. of Hist. & Biog.*, July.

LOINES, ELMA, The China Trade—Period of 1844-1846—Tonnage, Ships and Consignees, 4 pp. *Essex Inst. Hist. Coll.*, July.

LUKE, M. H., see Sect. VIII.

MANNING, C. A., *Russian Influence on Early America*, 216 pp. $3.75. New York, Library Pub. Account of Russian expansion into Alaska and North Pacific. Footnotes indicate principal dependence upon Okun and Golder.

MEINIG, D. W., Wheat Sacks Out to Sea: The Early Export Trade from the Walla Walla Country. *Pacific Northwest Quar.*, Jan. Covers 1868-85 period.

MUNROE, MRS. F. C., Journal of Rebecca Chase Kinsman Kept on her Voyage to China in 1843, 20 pp. *Essex Inst. Hist. Coll.*, July. To be continued. See earlier Kinsman entries by same author.

PRISTON, R. A., *Gorges of Plymouth Fort: A Life of Sir Fernando Gorges, Captain of Plymouth Fort, Governor of New England, and Lord of the Province of Maine*, 495 pp. $7.50. Toronto, Univ. of Toronto Press in coöperation with the Royal Military College of Canada.

RYDELL, R. A., *The Cape Horn Route to the Pacific, with Special Reference to the United States in the Nineteenth Century*. MS. Ph.D. thesis, California, Los Angeles.

STRACHEY, WILLIAM, *The Historie of Travell into Virginia Britania* (1612), ed. L. B. Wright & Virginia Freund, 224 pp. 27*s* 6*d*. Free to members. London, Hakluyt Society.

STUCKEY, A. P., *Origin and Development of the American Maritime Fur Trade, 1787-1812*. MS. Ph.D. thesis, Florida, Gainesville, 1952.

SWISHER, EARL, *China's Management of the American Barbarians: A Study of Sino-American Relations, 1841-1861, with Documents* (Far Eastern Assn. Monograph, No. 2), 844 pp. New Haven, Far Eastern Publications. Includes translation of 544 Chinese documents.

TAYLOR, W. H., Harry Pidgeon, Sailor Extraordinary, 4 pp. *Yachting*, June. 'For an Iowa farm boy who never saw salt water until he was 18, the late Harry Pidgeon did quite a lot of visiting around by boat during the last 35 of his 86 years. There never was a sailor quite like him; proba-

bly never will be another. It wasn't just that he was the second man to circumnavigate the globe single-handed and the only one to do so twice . . . It was the way he did things and the kind of man he was.'

(TUCKER, D. R.), Notebook of Daniel Robert Tucker, 15 pp. *Bermuda Hist. Quar.*, Autumn, 1953. Numerous details of Bermuda shipping and cargoes, 1855-57.

VAN DEUSEN, A. E., *The Trade of Revolutionary Connecticut*. MS. Ph.D. thesis, Univ. of Pa., 1948.

WAGNER, H. R., *The First American Vessel in California. Monterey in 1796* (Early California Travels Series, 22), 33 pp. $5.00. Los Angeles, Glen Dawson. Commentary on and translation of part of a little-known work published in Paris in 1824.

WILLIS, A. F., Farewell, Coasting Schooner, 5 pp. *Yachting*, July.

WILSON, F. A., 'Everybody Left the Hooker at Portland Including the Rats.' *MCF*, Aug. Shipwrecks and storms in connection with some of the big coal schooners.

WOODCOCK, GEORGE, The Fur Empires of the North, 10 pp. *History Today*, April. International rivalry for the Northwest, particularly British Columbia.

IV. *Merchant Sail and General Shipping—Other Regions*

BHATTACHARYYA, S., *The East India Company and the Economy of Bengal, 1704-40*. MS. Ph.D. thesis, Univ. of London, 1953.

BOVILL, E. W., Some Chronicles of the Larkins Family: The Convict Ship, 1792, 8 pp. *Mariner's Mirror*, May. Details of an early voyage to Australia by a chartered East Indiaman.

BURNS, SIR ALAN, *History of the British West Indies*. $11.00. New York, Macmillan. Covers every British colony in or near the Caribbean, from the beginning.

CAMPBELL, G. F., *China Tea Clippers*, 77 pp. $1.50. New York, John de Graaf.

CLARK, G. V., Under Sail in the Seventies, 5 pp. *Sea Breezes*, May. Experiences of Capt. John Henry Hurst of Scarborough, England, 44 years at sea (1873-1917) including 34 years in command.

CLUNE, FRANK, & STEPHENSON, P. R., *The Viking of Van Diemen's Land: The Stormy Life of Jorgen Jorgensen*, 482 pp. 21*s*. Sydney, Angus & Robertson. Danish mariner, who served as a British agent during part of the Napoleonic period and was later transported to Tasmania.

DILLEY, J. W., *The German Merchants and Scotland, 1295-1327*. MS. Ph.D. thesis, California, Los Angeles, 1946.

DOUGLAS, J. S., *Fate of the Clipper 'Westwind.'* 8*s* 6*d*. London, Muller.

EDWARDS, H. W., RN, *Under Four Flags*. 10*s* 6*d*. London, P. Marshall. Experiences under sail and steam in the Norwegian and British merchant marines, the Royal Naval Reserve, and the Royal Navy.

ENCOMBE, W. M. L., *Full and Down: the History of Encombe, McGrath & Company, Limited*, 90 pp. London, EC 3, The Company, 4 Lloyds Ave. History of London firm of freight brokers since 1823.

FERNS, H. S., Britain's Informal Empire in Argentina, 1806-1914. *Past & Present*, Nov. 1953.

GADE, J. A., *The Hanseatic Control of Norwegian Commerce during the Middle Ages*. MS. Ph.D. thesis, Columbia, 1950. Available in microfilm.

GLENN, JOHN, Tacking and Gybeing the Spritsail Barge, 2 pp. *Trident*, June. 'The spritsail barge is more individual and complicated than any craft that ever worked the English coasts.'

GREENBERG, M. M., *British Trade and the Opening of China, 1800-1842*. MS. Ph.D. thesis, Cambridge Univ., 1949.

GWYNNE-TIMOTHY, J. R. W., *Anglo-French Colonial Rivalry, 1783-1815*. MS. Ph.D. thesis, Oxford, 1943.

HANSEN, H. A., *The Sound Trade and Anglo-Dutch Conflict, 1640-1654*. MS. Ph.D. thesis, California, Los Angeles, 1947.

HART, H. V., RNR, 'A Bone and Two Biscuits,' 4 pp. *Sea Breezes*, July. Passage to Australia as apprentice in square-rigger, 1900. Title refers to the house flag.

HOWELL, B. M., *Mauritius, 1832-1849; a Study of a Sugar Colony*. MS. Ph.D. thesis, Univ. of London, 1951.

JAMES, M. K., *The Gascon Wine Trade of Southampton during the Reigns of Henry VI and Edward IV*. MS. B.Litt. thesis, Oxford, 1948.

KERLING, N. J., *The Commercial Relations of Holland and Zeeland with England from the late Thirteenth Century to the Close of the Middle Ages*. MS. Ph.D. thesis, Univ. of London, 1952.

KROEBER, C. B., *River Trade and Navigation in the Plata Region, 1800-1852*. MS. Ph.D. thesis, California, Berkeley, 1952.

'The Lightning Gazette,' 5 pp. *Sea Breezes*, July. Verbatim reproduction of first issue of newspaper printed aboard clipper en route Sydney to Liverpool, 14 April 1855. Other issues to follow.

LLOYD, CHRISTOPHER, The Opening of Anglo-Russian Relations, 4 pp. *History Today*, April. The voyages of 'Chancellor,' 1553-56, and the formation of the Muscovy Company. See also Willan, below.

MAKEY, W. H., see Sect. VIII.

MALLING, J., Square Riggers Built in Denmark since 1869, 2 pp. *Log Chips*, April.

POYSER, E. R., *Anglo-Italian Trade from the Reign of Elizabeth to the French Revolution, with special reference to the Port of Leghorn*. MS. M.Litt. thesis, Cambridge Univ., 1951.

PRIESTLY, M. A., *The Problem of Anglo-French Commercial Rivalry in the Reign of Charles II*. MS. B.Litt. thesis, Oxford, 1949.

REDGRAVE, W. J., Blue Peter—Ship without a Port, 4 pp. *S&S*, Summer. Government-owned schooner providing mail and passenger service between Dutch islands of Saba, St. Eustatius and St. Martins.

SHERIDAN, R. B., *The Sugar Trade of the British West Indies from 1660 to 1756, with special reference to the Island of Antigua*. MS. Ph.D. thesis, Univ. of London, 1951.

TICKNER, F. J., *The Rise of the Dutch East India Company*. MS. Ph.D. thesis, Oxford, 1952.

WEBB, J. G., *Henry Toole, Merchant of Early Tudor Ipswich*. MS. M.A. thesis, Univ. of London, 1953.

WILLAN, T. S., *The Muscovy Merchants of 1555*, 141 pp. 16*s*. Manchester, Univ. of Manchester Press, 1953. See also Lloyd above.

WILLIAMS, C. H., RNR, Under Sail to New Zealand in 1870, 4 pp. *Mariner's Mirror*, May. Voyage of clipper 'Otago'; account deals chiefly with shiphandling and weather.

WILLIAMS, N. J., *The Maritime Trade of the East Anglian Ports, 1550-90*. MS. Ph.D. thesis, Oxford, 1952.

V. *Fisheries and Whaling*

ALLEN, E. W., Fishery Geography of the North Pacific Ocean, 6 pp. *Geog. Rev.*, Oct. 1953.

BARTLETT, NORMAN, *The Pearl Seekers*, 312 pp. 16 *s*. London, Andrew Melrose. 'A factual though exciting account of the past and present of the pearling trade on the . . . coasts of Australia.'

BURTT, E. J., JR., *An Economic Appraisal of the New England Fishing Industry*. MS. Ph.D. thesis, Duke, Durham, 1950.

CONRAD, EARL, *Gulf Stream North*, 253 pp. $3.50. Garden City, Doubleday. 'Semi-documentary novel' of crew of Florida Negroes fishing menhaden.

COOKE, R. K., Today's Crews would Blow Deck Off if They Ate the Old Time Fare. *MCF*, June. Reminiscences of Capt. Angus Walters, veteran fishing skipper of Lunenburg, N. S.

DOUGHTY, JEAN, 'We Haven't Had a Flat Calm Since Gas Engine Invented.' *MCF*, May. Reminiscences of George Washington Doughty, veteran fisherman of Bailey Island, Maine.

DREWS, R. A., *The Cultivation of Food Fish in China and Japan: a Study disclosing Contrasting National Patterns for Rearing Fish consistent with the Different Cultural Histories of China and Japan*. MS. Ph.D. thesis, Michigan, Ann Arbor, 1952.

DUNLOP, J. M., *The British Fisheries Society, 1786-1893*. MS. Ph.D. thesis, Univ. of Edinburgh, 1952.

Early Herring Run in Casco Bay Catches Some Seiners Unprepared, 3 pp. *MCF*, June. Pictures, with brief comment, of activity near Portland, Maine.

FINCH, ROGER, The Oyster Smack 'Boadicea,' 2 pp. *Trident*, May. Colchester, England, boat built in 1808 and still in service.

GOLDIE, L. F. E., Occupation of the Sedentary Fisheries off the Australian Coasts, 12 pp. *Sydney Law Rev.*, April 1953.

GORDON, JOSEPH, Whaler 'Charles W. Morgan' had her Last Voyage in 1941. *MCF*, Aug.

HANSON, H. C., The Gillnet Boat and its Operation on the Pacific Coast, 6 pp.

——— The Trolling Boat and its Operation on the Pacific Coast, 12 pp.

——— Combination Fishing Vessel of the Pacific, 40 pp.

——— The Tuna Clipper of the Pacific, 16 pp. Papers delivered at annual convention of Society of Naval Architects and Marine Engineers. Available at $5.00 per set from the author, 102 Coleman Dock, Seattle, 4.

HOLM-PETERSEN, F., '. . . Steer South, South-East,' 6 pp. *Sea Breezes*, May. Rescue of crew of Danish schooner sunk while returning with fish from Newfoundland, 1925.

HOUK, R. J., *The Portuguese Maritime Fishing Industry*. MS. Ph.D. thesis, Northwestern Univ., Evanston, 1951.

KHAN, J. A., Pakistan's Fish Industry, 4 pp. *Asian Review*, April.

MCCARTY, JERRY, New Quahog Dredge Takes Stoop & Strain Out of Gathering Seed, 3 pp. *MCF*, Aug. Pictures with comments; Maine Sea & Shore Fisheries dredge in operation at West Bath.

MCMANUS, J. P., *The Trade and Market in Fish in the London Area in the Early Sixteenth Century, 1485-1563*. MS. M.A. thesis, Univ. of London, 1952.

NORBECK, EDWARD, *Takashima: a Japanese Fishing Community*, 242 pp. $3.00. Salt Lake City, Univ. of Utah Press. 'Ethnographic description.'

The Port of Fleetwood: A Busy Lancashire Fishing Center, 6 pp. *D&HA*, April. Includes sections of history and many varied aspects of activity.

PYBUS, W. G., Netherlands and its Fishing Industry, 2 pp. *Foreign Trade*, 6 March.

ROBERTSON, W. S., International Cooperation in Fisheries Conservation. *U. S. Dept. of State Bulletin*, 22 Feb.

ROSCOE, W. F., *Icebound*, 132 pp. $2.00. New York, Vantage Press. Fictionalized account of experiences of Arctic trip of square-rigger engaged in salmon fishery in 1918.

(SCATTERGOOD, L. W.), Biologist Observes Norwegian Herring Tagging Operation, 3 pp. *MCF*, July. Pictures with comments.

SOMMERS, L. M., *The Norwegian Fishing Industry as Exemplified by Möre og Romsdal County*. MS. Ph.D. thesis, Northwestern Univ., Evanston, 1951.

STEWART, BERTRAM, London and the Early Whaling Trade, 2 pp. *PLA*, April.

STOOPS, W. H., The South African Fishing Industry, 10 pp. *So. African Jour. Econ.*, Sept. 1953.

STUART, F. S., *A Seal's World: an Account of the First Three Years in the Life of a Harp Seal*, 223 pp. $4.00. New York, McGraw, Hill. Fictionalized account of seal's wanderings from White Sea to Atlantic.

SWYGARD, K. R., *The International Halibut and Sockeye Salmon Fisheries Commissions: a Study in International Administration*. MS. Ph.D. thesis, Univ. of Washington, Seattle, 1948.

THOMAS, G. W., A Gloucesterman Spent Awful Night on Ram Island. *MCF*, May. Wreck of schooner 'Yosemite' on Nova Scotia coast, 21 Jan. 1897.

——— Schooner Ingomar made Halibut History under Capt. Olsen. Ibid., July. Gloucesterman, 1904-36.

Tuna and Shrimp Two Fastest Growing Fisheries in Australia, 3 pp. *MCF*, May. Pictures with brief comments.

WHIPPLE, A. B. C., *Yankee Whalers in the South Seas*, 304 pp. $3.95. New York, Doubleday. Series of episodes, told by an associate editor of *Life*, where his story of 'Essex' appeared, 10 Nov. 1952 (XIII, 69).

WHITE, D. J., *Union Policies in the New England Fishing Industry*. MS. Ph.D. thesis, Harvard, 1949.

WYLIE, PHILIP, The Mysterious Doctors of Bimini, 4 pp. *Saturday Evening Post*, 7 Aug. Lerner Marine Laboratory and the gathering of marine specimens for research on cancer and other scientific purposes.

VI. *Merchant Steam, Ocean and Tidewater*

ARGYLE, E. W., Manx Memories, 4 pp. *Sea Breezes*, July. History of steam service from Liverpool to the Isle of Man since 1830.

BILLINGS, HENRY, *Superliner SS. 'United States,'* 128 pp. $3.00. New York, Viking.

BRADY, H. W., The 'Aaron Manby' of 1822: New Light on the First Iron Steamer, 6 pp. *Syren & Shipping Illustrated*, 6 Jan. Reprinted as special publication of the Steamship Historical Society and distributed with June issue of *SBF*.

BROWN, G. T., *The Admiral Line and its Competitors: The Zenith and Decline of Shipping along the Pacific Coast*. MS. Ph.D. thesis, Claremont, 1949.

BURLEY, R. F., *A Report on Pacific Coastwise Shipping, with Special Reference to the San Francisco Bay Ports Area*. San Francisco, S. F. Bay Ports Commission, 785 Market St. See also Stumpf below.

CAMERON, DON, The Fleet that was Born in a Jungle, 7 pp. *S&S*, Summer. Alcoa ore carriers penetrating the Surinam jungle for bauxite.

CAUDILL, W. G., et al., *Records of the Special Committee of the Senate to Investigate Air-Mail and Ocean-Mail Contracts* (Preliminary Inventory No. 63). Washington, National Archives.

Commerce Report on Maritime Subsidy Policy, 4 pp. *Marine News*, June. Analysis of Dept. of Commerce report on 'Maritime Subsidy Policy' by R. B. Murray, Jr., Under Sec. for Transportation.

Cunard to Canada, 10 pp. *Sea Breezes*, May. Original service from 1840 to 1860's and revival in 1911; article occasioned by new 'Saxonia.'

Deep Sea Blues: Report on Shipping; Between the Rocks of Foreign Competition and the Shoals of Subsidy, U. S. Bottoms Steer a Precarious Course, 4 pp. *Forbes*, 1 April.

FARMER, B. J., The Glory Hole, 2 pp. *PLA*, March. Description of stokehold on old coalburners.

FREDERICKSON, J. W., *American Shipping and Foreign Commerce*. MS. Ph.D. thesis, Univ. of Chicago, 1953. Available in microfilm.

The Greek Merchant Marine: its Importance in the Economy of the Country and its Contribution to the National Income, 10 pp. *Hellenic-American Chamber of Commerce Bulletin*, No. 11, 1953.

GREGG, DOROTHY, *The Exploitation of the Steamboat: the Case of Colonel John Stevens*. MS. Ph.D. thesis, Columbia, 1951. Available in microfilm.

GROUT, R. G., The Short Sea Trade, 6 pp. *Inst. Transport Journal*, Jan. Cargo liners between Great Britain and nearer ports of the Continent. See also Younghusband below.

HARBRON, J. D., The U.S.S.R. Merchant Marine, 3 pp. *Canadian Shipping*, April. Possible orders for Canadian-built ships 'to augment a merchant marine of which over 80% has been built in non-Russian yards.'

HAZARD, J. L., *Elements of the Crisis in Atlantic-Gulf Shipping*. MS. Ph.D. thesis, Univ. of Texas, Austin, 1953.

ISHERWOOD, J. H., The 5-Masted 'Rotorua,' ex-'Shropshire,' 3 pp. *Sea Breezes*, May. Australian-New Zealand service, 1911-1940.

——— PSNC Liner 'Orotava,' 4 pp. Ibid., June. In South American and Australian services, 1889-1914; then armed merchant cruiser.

——— Inman Liner 'City of Berlin,' 4 pp. Ibid., July. 'One of the most interesting liners that the "Ferry" has ever seen,' built in 1875; after 1898, served as U. S. Transport 'Meade.' All in his 'Steamers of the Past' series.

LAND, E. S., USN, The Merchant Marine of Panama as an American Asset, 4 pp. *USNIP*, July. Reasons why American owners have placed so much shipping under Panamanian colors, by the wartime chairman of the Maritime Commission.

LEE, R. C., Making Passenger Ships Safe for Passengers, 3 pp. *Marine News*, May. Also, on same subject, R. F. Serbutt, 'Fire Protection in Passenger Ships,' *S&SR*, Internat. Design & Equipment issue.

MARX, DANIEL, JR., *The United States Maritime Commission, 1936-1940*. MS. Ph.D. thesis, California, Berkeley, 1947.

MCROBERTS, JOHN, Ulster's Head Line, 17 pp. *Sea Breezes*, June. General ocean freighting; list of its 53 ships since 1877.

A Merchant Marine Primer, 7 pp. *Marine News*, May. Summary of statistical data, along with interpretations of American shipping history.

MONROE, KEITH, They Remembered the 'Birkenhead,' 6 pp. *Reader's Digest*, Aug. Effect of the 'women and children first' tradition from the sinking British transport 'Birkenhead' in 1852 in averting panic in the recent loss of another British transport, 'Empire Windrush.'

MOLL, F. G. E., Royal Rotterdam Lloyd, 25 pp. *Sea Breezes*, July. History of the Ruys family's service to the Dutch East Indies since 1870, with 12 pictures and fleet list of 155 ships. Already in *Belgian Shiplover* (XIII, 221).

MORROW, E. A., Paraguay Opens Line to Europe. *N. Y. Times*, 16 May, 1, 88. Line of small steamers from Asuncion to Hamburg, Rotterdam and Antwerp.

MOSTERT, NOEL, Canadian Pacific Spans the World, 8 pp. *S&S*, Fall. History of the railway's steamship services.

Order New Freighter for Time-Honored Services, 3 pp. *NASM News* (Holland-American Line), June. History of the Line's cargo service to various American ports by its 'dyk' freighters.

PARKINSON, R. W., From the Golden Gate to Puget Sound, 2 pp. *SBF,* June. Account of San Francisco Bay ferries towed to Puget Sound after opening of Bay Bridge and Golden Gate Bridge, 1936-37. To be continued.

RINGWALD, D. C., Monarch of the Day Line, 4 pp. *S&S,* Fall. 'Hendrick Hudson,' crack Hudson River sidewheeler, 1906-48.

S.S. 'Quistconk,' First of 'Hogs,' Was Broken Up, 1 p. *Lykes Fleet Flashes,* May. First Hog Islander, launched 5 Aug. 1918, serving in Lykes fleet 1933-40, then sold to British and finally, in 1952, to Italians.

SALETAN, L., *State Subsidies to the British Merchant Marine, 1900-50.* MS. M.A. thesis, Univ. of London, 1952.

SLOAN, J. D., Tugs and Pilots, 8 pp. *USNIP,* July. Technical details of signals, tieups and other aspects.

STOKE, MAE, The Fireboats, 3 pp. *The Lookout,* May.

STONE, P. M., The Boston-New York Passenger Service, 1907-1941, 3 pp. *SBF,* June. Outline chronology of the Metropolitan-Eastern Steamship direct service, first around Cape Cod, then through the Cape Cod Canal.

STROM, S. A. E., Family Ship, 3 pp. *Trident,* May. Experiences of captain's family aboard little Australian steamer 'Tagliaferro' in 1895.

STUMPF, J. A., *A Report on Intercoastal Shipping Problems: with Special Reference to the San Francisco Bay Ports Area,* 38 pp. San Francisco, S. F. Bay Ports Commission, 785 Market St., 1953. See also Burley above.

SULZBERGER, C. L., U. S. Studies Onassis Monopoly for Shipping Saudi Arabia's Oil. *N. Y. Times,* 23 June, p. 45.

SURIS, V., World Trade—A Seaman's View, 3 pp. *New Times,* 22 May. Comments by radio officer of Russian tramp on alleged cramping naval activity of Americans and British.

YOUNGHUSBAND, A. W., To France in G.S.N. Ships, 4 pp. *Sea Breezes,* July. Weekly 'short trade' service between London and Bordeaux.

VII. *Inland Navigation*

A. L. Mechling Barge Lines, 4 pp. *Lykes Fleet Flashes,* July. 'No. 15 in a series on inland transportation serving the U. S. Gulf.'

BOGGISS, D. L., York Boat Coming, 2 pp. *The Beaver,* Summer.

CAMMACK, E. A., Notes on Wabash River Steamboating: Early Lafayette, 16 pp. *Indiana Mag. of Hist.,* March.

CHAPIN, ELIZABETH, Steamboats Out of Buffalo, 1830-1840, 8 pp. *Inland Seas,* Summer. To be continued.

CUMMINGS, H. M., Pennsylvania: Network of Canal Ports, 14 pp. *Pa. History,* July.

FLEURY, ROY, The Wreck of the 'Alice Hackett' at Horse Island, Quebec, October, 1828, 2 pp. *Inland Seas,* Summer. Reprinted from Manitoulin *Expositor,* May 1953.

GILLIAT, ROSEMARY, Sternwheelers of the Yukon, 4 pp. *The Beaver,* Summer.

HAMMING, EDWARD, *The Port of Milwaukee,* Dept. of Geography, Univ. of Chicago, Research Paper No. 27, 176 pp. Chicago, The Dept., 1953.

HANKS, C. C., The Pulpwood Fleet, 4 pp. *Inland Seas,* Summer. Development of million-dollar business on Great Lakes by Capt. John Roen, starting with a little steamer in 1923.

HORTON, C. R., JR., Push or Pull on the Inland Waterways, 4 pp. *The Log,* May. Also 4 pp. *Waterways,* March. Relative merits of pushing and regular towing.

KROEBER, C. B., see Sect. IV.

LANDON, FRED, Port Stanley to Cleveland Excursion of 1849, 2 pp. *Inland Seas,* Summer. Reprinted from London, Ont., *Free Press,* 6 March.

MASON, G. C., A Young Man's Experience of Great Lakes Shipping and Shipbuilding during the Years 1895-1920, 12 pp. *Inland Seas,* Summer.

MAYER, H. M., Great Lakes—Overseas: An Expanding Trade Route. *Econ. Geog.,* April.

Mississippi Valley Barge Line Co., 3 pp. *World Ports,* May.

NEISUIER, JEANETTE, When Schenectady and the Erie Canal were Young Together, 20 pp. *N. Y. History,* April.

PATTERSON, R. M., *The Dangerous River,* 260 pp. 15*s.* London, Allen & Unwin. 'The South Nahanni

drops from the Yukon-Canadian divide through tremendous canyons and mosquito-infested flats to the Mackenzie.'

PLUMB, One Hundred Crossings, 6 pp. *Inland Seas*, Summer. Pere Marquette car ferry service on 65-mile Lake Michigan crossing between Manitowoc and Ludington.

RAPP, M. A., *The Port of Buffalo, 1825-1880*. MS. Ph.D. thesis, Duke, Durham, 1948.

SCRUGGS, J. H., JR., Tragic Alabama River Incidents, 2 pp. *SBF*, June. Burning of the steamboats 'Eliza Battle,' 1858, and 'Gardner,' 1887, with narrow escape of 'Nettie Quill,' 1887.

SPULBER, NICHOLAS, The Danube-Black Sea Canal and the Russian Control of the Danube, 10 pp. *Econ. Geog.*, July.

STEWART, E. K., *Steamboats on the Columbia: the Pioneer Period, 1850-1869*. MS. Ph.D. thesis, California, Berkeley, 1948.

TASKER, J., Inland Waterways in the North-East of England, 4 pp. *D&HA*, April.

THOM, R. W., The Lone Sailor, 2 pp. *Inland Seas*, Summer. Capt. Frank Henman, who operated little trading schooner on Georgian Bay for many years, finally drowned in storm in 1926.

WAY, FREDERICK, JR., *Way's Directory of Western Rivers Steam Towboats*, 452 pp. $10.10. Sewickley, Pa., The Author, 121 River Ave. Companion work to his Packet Directory.

VIII. *Seaports and Coastal Areas*

ALBION, R. G., Portland, Maine (part of 'Two Ports of Portland'), 7 pp. *S&S*, Fall. Historical survey; see also Granberg below.

AZVEDO, CARLOS DE, Goa, Damao and Diu, 15 pp. *Geog. Mag.*, June. The old Portuguese ports in India.

BARKER, T. C., & HARRIS, J. R., *A Merseyside Town in the Industrial Revolution: St. Helens, 1750-1900*, *c.* 400 pp. $4.50. Liverpool, Univ. of Liverpool Press. Development of salt, glass, copper, and soda industries to provide cargoes for Liverpool vessels.

BAUM, A. W., Will New Orleans Lose the Mississippi? 5 pp. *Saturday Evening Post*, 31 July. Danger that the Mississippi may be diverted, up river near the state line, into the shorter 'Old River' and Atchafalaya River route to the Gulf near Morgan City, with Army Engineer plans to check this.

BORNHOLT, L. A., see Sect. III.

BOWN, A. H. J., *Port Economics*, 143 pp. 16*s*. London, *D&HA*, 19, Harcourt St. Based on recent series of articles in *D&HA*. Intended as a companion volume to A. H. J. Bown & C. A. Dove, *Port Operation & Administration*, 21*s*. London, Chapman & Hall, 1951.

BURLEY, R. F., see Sect. VI.

BUTLER, REG, The Development of Turkish Ports, 2 pp. *D&HA*, April.

EDWARDS, GILLESPIE, see Sect. I.

FARR, GRAHAME, *Somerset Harbours, Including the Port of Bristol*, 160 pp. 12*s* 6*d*. London, C. Johnson.

FORD, N. D., Istanbul: Port on the Golden Horn, 8 pp. *S&S*, Summer.

GRANBERG, W. J., Portland, Oregon (part of 'Two Ports of Portland'), 6 pp. *S&S*, Fall. Historical survey; see also Albion above.

GREENE, M. T., Pitcairn's Island is Losing its 'Mutineers,' 6 pp. *American Mercury*, Aug. 'Today there are scarcely one hundred people on the lonely rock. Most of the younger ones have gone.'

GROH, LYNN, Ugly Ducklings of New York Harbor, 7 pp. *S&S*, Summer. Barges, carfloats and other harbor craft.

HADSKIS, H. A., Saint John: the Loyalist Port, 3 pp. *Foreign Trade*, 23 Jan.

HARDEMAN, N. P., *History of the Inland Seaport of Stockton, California*. MS. Ph.D. thesis, California, Berkeley, 1953. See also 'Bulk Cargo via Stockton,' 2 pp. *World Ports*, June.

HARTRICK, W. J., *Foreign Trade through Texas Ports*. MS. Ph.D. thesis, Univ. of Texas, Austin, 1949.

HAUSER, E. O., Inside the Rock of Gibraltar, 5 pp. *Saturday Evening Post*, 15 May. Similar subject, 6 pp. *Life*, 17 May, with illustrations of main events in the Rock's history.

HAZELTON, W. B., *The International Administration of the Turkish Straits, 1924-1936*. MS. Ph.D. thesis, Stanford, 1952.

HERRING, F. W., U. S. Port Organization and Its Effects on Cargo Handling, 4 pp. *Marine News*, July. 'No U. S. port is *wholly* controlled by any one authority.'

JANSON, HERMAN, Swedish Ports and Harbours: Trends of Modern Development. *D&HA*, May.

KUBLIN, HYMAN, *The Bonin Islands.* MS. Ph.D. thesis, Harvard, 1948.

LEWIS, R. S., Bulk Cargo Handling: Description of Some Modern Mechanical Installations, 3 pp. *D&HA,* June.

LIVERSEDGE, H. P., *The Importance of the Port and Foreign Trade to the Philadelphia Area,* 24 pp. Philadelphia 5, Publicity Dept., Phila. Electric Co., 1953.

The Lock Foreman (London Port Types, XXIX), 1 p. *PLA,* March.

'LOOKER-ON,' pseud., The Port Through the Ages. *PLA,* March-April; III. Pillage by Saxon and Viking, 1 p., March; IV. Under the Normans, 1 p., April.

LUKE, M. H., *The Port of New York, 1800-1810: the Foreign Trade and Business Community.* MS. Ph.D. thesis, New York University, 1950.

MAKEY, W. H., *The Place of Whitehaven in the Irish Coal Trade, 1600-1750.* MS. M.Sc. thesis, Univ. of London, 1952. See also Williams below.

MARSHALL, JOHN, Voyage to the Outer Hebrides, 4 pp. *Trident,* April.

MORAN, E. J., USNR, Stop-and-Go Sail Around South Norway, 40 pp. *Nat. Geog.,* Aug.

New Oilport at the Isle-of-Grain, 4 pp. *D&HA,* June. Refinery and jetties on River Medway, near mouth of Thames.

NICHOLS, T. E., The Rise of Barranquilla, 17 pp. *Hispanic-American Hist. Rev.,* May. 'Before the end of the century Barranquilla was indisputably the leading port of Colombia, having in a few decades grown from a small and insignificant river settlement.'

ORTIZ, R. M., *The Harbor System of El Salvador,* 140 pp. Paper. New York, United Nations Technical Assistance Admn.

The Pool of London (Down the Reaches, III), 2 pp. *PLA,* March. Seven pictures.

The Port of Fleetwood, see Sect. V.

Port Operating Practice: Differences in British and American Methods, 2 pp. *D&HA,* April.

Port Progress Series: *World Ports* (see also XII, 293; XIV, 150) No. 19, New York (four separate articles), April; No. 20, Baltimore, June.

'R.C.B.,' pseud., The Port of Exeter and its River, 2 pp. *Trident,* June.

REDGRAVE, W. J., Sombrero—Island with a Past, 7 pp. *S&S,* Fall. 'The lighthouse isle in the strategic Anagada Passage which separates the Virgin Islands from the Leeward group,' once an active source of phosphate.

REED, A. H., *Farthest South,* 111 pp. 12*s* 6*d.* Wellington, N. Z., Reed. Southern shores of the South Island of New Zealand.

SCHAD, H. G., The Delaware River—International Highway, 7 pp. *Marine News,* June. See also 'Expansion on the Delaware,' 3 pp: *Grace Log,* March-April.

SPLITSTONE, F. J., *Orcas: Gem of the San Juans,* 96 pp. $3.00. Rev. ed. East Sound, Wash., F. T. Darvill. History of island in Puget Sound.

STEEL, JAMES, Cargo Handling at Ports: The Benefits of Mechanization, 3 pp. *D&HA,* May.

STRICKER, JOHN & VERONICA, *Hong Kong in Picture and Story,* 175 pp. 18*s* 9*d.* Hong Kong, Tai Wah Press (London distributor: Hong Kong Govt. Office). Chiefly photographs with brief text.

STUMPF, R. F., see Sect. VI.

TETREAULT, F. L., Seamen, Seaworthiness, and the Rights of Harbor Workers, 44 pp. *Cornell Law Quar.,* Spring. 'The longshoreman has since won recognition for the maritime nature of his work.'

THIBODEAUX, E. C., *The New Orleans-Houston Port Rivalry.* MS. Ph.D. thesis, Columbia, 1952. Available in microfilm.

TREGEAR, T. R., Shih Hui Yao: A Chinese River Port with a Future, 4 pp. *Geog.,* April.

TRUMP, R. M., *The Port of New Orleans, with special reference to its Foreign Trade Zone.* MS. Ph.D. thesis, Ohio, Columbus, 1948.

VAN AMERONGEN, I. C., Holland's Sea Defences: Ambitious New Scheme of Coastal Protection, 2 pp. *D&HA,* April. New dams to prevent repetition of the great floods of early 1953.

WILLIAMS, J. E., *The Growth and Decline of the Port of Whitehaven, Cumberland, 1650-1900.* MS. M.A. thesis, Univ. of Leeds, 1951.

IX. *Shipbuilding and Allied Topics*

AXELSON, E. R., Saint John Dry Dock Company, Limited (Canada's Shipyards), 3 pp. *Canadian Shipping,* May.

Continuing Rope Research, 3 pp. *Tow Line* (Moran), April. Test of towboat strains.

GARDINER, C. H., see Sect. X.

Gloom in the Shipyards, 4 pp. *Fortune*, July. 'The U. S. Shipbuilding industry is not in danger of disappearing overnight, but it is quite sick—sicker, in fact, than any other major U. S. industry, with the possible exception of soft coal.'

HICKS, ERIC, The Shipwrights (Guilds and Livery Companies of London, II), 3 pp. *PLA*, March.

HOWARD, R. W., Rope from Plymouth, 5 pp. *American Heritage*, Spring. History of Plymouth Cordage Co., established in 1834.

International Design and Equipment Number. *S&SR* (no date). Large number of separate articles on many aspects of shipbuilding, etc.

LADAGE, JOHN, Why a Ship is Launched Stern First, 2 pp. *S&S*, Fall.

(LYMAN, JOHN), Books of Ship Specifications, 2 pp. *Log Chips*, April. Prepared in connection with seeking for competitive bids for building new tonnage, generally printed in 'strictly limited editions and are unknown in the public trade.' Details of six such books, *c.* 1901-1925.

——— The Shipbuilders of Bath, Maine, IV—Bath Iron Works, Ltd. Ibid.

MCGUGAN, ANGUS, Shipbuilding in Canada, 16 pp. *Can. Geog. Jour.*, July. Comprehensive historical sketch, with statistical tables.

MANNING, G. P., Another 'Spray' coming to Life, 7 pp. *Motor Boating*, July. Full details of building in Vermont an exact replica of Capt. Joshua Slocum's 36-foot round-the-world yacht.

MARCUS, STEVEN, USMC, Why Wooden Ships? 4 pp. *S&S*, Summer. Details of construction of new Navy minesweepers, reprinted from *Leatherneck*.

Mississippi Master Shipbuilder, Avondale Marine Ways, New Orleans. *Fortune*, May.

Models of Today, Ships of Tomorrow, 6 pp. *Bureau of Ships Journal*, May. David W. Taylor Model Basin, Carderock, Md.

NICHOLS, P. A. C., Boat-building Eskimos, 4 pp. *The Beaver*, Summer.

POLLARD, S., *The Economic History of British Shipbuilding, 1870-1914*. MS. Ph.D. thesis, Univ. of London, 1951.

PRATT, MARGARET, *Naval Construction during the Reign of James I*. MS. M.A. thesis, Univ. of Leeds, 1948.

REBBECK, D., *The History of Iron Shipbuilding at Belfast up to 1874*. MS. Ph.D. thesis, Univ. of Belfast, 1950.

SIMPSON, D. S., see Sect. V.

SNIFFEN, H. S., Figureheads and their Subjects, 3 pp. *Antiques*, July. Examples chiefly from the Mariners Museum, Newport News.

TREWBY, G. F. A., RN, The British Navy's Experiments with Gas Turbine Propulsion, 4 pp. *The Log*, June. Developments since 1941.

William S. Newell, 2 pp. *Marine News*, June. Biographical sketch and appreciation of head of Bath Iron Works who died 18 April.

WOOD, O., *The Development of the Coal, Iron and Shipbuilding Industries of West Cumberland, 1750-1914*. MS. Ph.D. thesis, Univ. of London, 1952.

X. *Naval to 1939—North America*

ABRAHAMS, R. D., *The Commodore* (Jacob R. Schiff Library of Jewish Contributions to American Democracy), 191 pp. $2.75. Philadelphia, Jewish Pub. Soc. of Am. Biography of Commodore Uriah P. Levy, USN, who played a part in the abolition of flogging in the Navy.

ATKINSON, J. D., *The London Naval Conference of 1930*. MS. Ph.D. thesis, Georgetown, 1949. See also Shaw below.

BAKER, M. D., JR., *The United States and Piracy during the Spanish-American Wars of Independence*. MS. Ph.D. thesis, Duke, Durham, 1947.

BOWEN, H. G., USN, *Ships, Machinery and Mossbacks: The Autobiography of a Naval Engineer*, 410 pp. $6.00. Princeton. Admiral Bowen was one of the last chiefs of the old Bureau of Engineering, head of the Naval Research Laboratory, and first Chief of the postwar Office of Naval Research. His pugnacious persistence produced numerous important technological innovations, notably the strongly opposed introduction of high-pressure, high-temperature steam aboard ship. During World War II, he seized and operated for the Navy numerous plants with labor difficulties.

BRAISTED, W. R., *The Development of the Far East as an American Naval Problem, 1897-1909*. MS. Ph.D. thesis, Univ. of Chicago, 1950.

——— The Philippine Naval Base Problem, 1898-1909, 20 pp. *Mississippi Valley Hist. Rev.*, June.

CARRIGG, J. J., *Benjamin Stoddert and the Foundation of the American Navy*. MS. Ph.D. thesis, Georgetown, 1953.

The Commandant's House, 8 pp. *Marine Corps Gazette*, May. History of the old residence of the heads of the Marine Corps near the Washington Navy Yard since about 1805.

COMSTOCK, HELEN, see Sect. IV.

COX, F. J., The American Naval Mission in Egypt, 6 pp. *Jour. Modern Hist.*, June. One of the first studies in the important but neglected subject of naval and military missions. 'In the spring of 1870 the first members of the American military mission commissioned by Khedive Ismail to reorganize his army and navy arrived in Egypt. . . . Nine of the officers were naval specialists.'

——— Colonel John Lay's Naval Mission in Egypt. *Cahiers d'Histoire Egyptienne*, March 1953.

DANIELS, JONATHAN, *The End of Innocence*, 351 pp. $5.00. Philadelphia, Lippincott. A study of the Wilson era, with much to say about the author's father as Secretary of the Navy, 1913-21.

DATER, H. M., see Sect. XII.

DENT, K. S., *The English Navy and the Anglo-American War of 1812*. MS. M.A. thesis, Univ. of Leeds, 1949.

(DODSON, C. M., USN), A Cruise with Yellow Jack, ed. G. H. Tucker, 6 pp. *American Mercury*, July. Vivid diary passage of a Union naval doctor aboard the USS 'Arkansas' during a yellow fever epidemic on the Louisiana coast in the autumn of 1864.

DUVAL, M. P., USN, Admiral John Grimes Walker, 1 p. *USNIP*, Aug. Recognition of the distinguished service of Walker, one of the naval officers most deserving of a full-dress biography, in connection with isthmian canal development, 1897-1905.

EMMERSON, J. C., JR., *The Chesapeake Affair of 1807*, 287 pp. Processed, $4.00. Portsmouth, Va., The Author, P.O. Box 112. 'Compiled from contemporary newspaper accounts, official documents, and other authoritative sources, with 60 illustrations and a 47-page appendix.

Famous Ships of the Port of New York, see Sect. III.

FLORANCE, J. E., Morris Island: Victory or Blunder, 10 pp. *S. C. Hist. Mag.*, July. Argument that the Union forces in the approach to Charleston in 1863 should have moved on James Island or entered the harbor by sea.

GARDINER, C. H., The First Shipping Construction in New Spain, 11 pp. *The Americas*, April. Building of four brigantines by Martin Lopez, 'the first American naval shipwright,' for Cortez in 1519 to dominate Lake Texoco. Article related to a larger study of naval power in connection with the conquest of Mexico on a grant from the American Philosophical Society.

GATES, W. J., *The Broad Arrow Policy in Colonial America*. MS. Ph.D. thesis, Univ. of Pa., 1951.

GILBERT, B. F., *Naval Operations in the Pacific, 1861-1866*. MS. Ph.D. thesis, California, Berkeley, 1951.

GROELLING, D. T., *Submarines, Disarmament and Modern Warfare*. MS. Ph.D. thesis, Columbia, 1950. Available in microfilm.

HAUGEN, R. N. B., *The Setting of Internal Administrative Communication in the United States Naval Establishment, 1775-1920*. MS. Ph.D. thesis, Harvard, 1953.

HEINL, R. D., JR., USMC, The Cat With More Than Nine Lives, 13 pp. *USNIP*, June. 'On a rough average of once every eleven years since 1829, the U. S. Marine Corps has found itself compelled to fight for existence . . . against enemies of the Marine Corps.'

HELM, E. B., *The Captains and the Kings*, 307 pp. $5.00. New York, Putnam. Reminiscences of White House social secretary, daughter of Rear Admiral Andrew E. K. Benham and wife of Rear Admiral James M. Helm.

HOLMAN, D. A., The Destruction of the 'Maine,' February 15, 1898. *Quarterly Rev.*, Winter.

HOPKINS, W. R., Spar Torpedo, its Development, Tactical Use, and Mode of Detonation, 3 pp. *Mariner's Mirror*, May.

JARRELL, H. T., USN, How the 'Panay' was Sunk, 2 pp. *USNIP*, May. Amplification of Okumya article, ibid., June 1953.

KARIG, WALTER, USN, & BIRD, H. V., USN, *Don't Tread on Me: a Novel of the Historic Exploits, Military and Gallant, of Commodore John Paul Jones, Founder of the United States Navy, Ever-Victorious in the American Revolution*, 442 pp. $4.00. New York, Rinehart. See also Lorenz, below.

LINCOLN, ASHBROOK, *The United States Navy and Air Power, a History of Naval Aviation, 1920-1934*. MS. Ph.D. thesis, California, Berkeley, 1946.

LORENZ, LINCOLN, *The Admiral and the Empress: John Paul Jones and Catherine the Great.* $3.50. New York, Bookman Associates.

MAYNARD, D. H., Plotting the Escape of the 'Alabama,' 13 pp. *Jour. Southern Hist.*, May.

——— Union Efforts to Prevent the Escape of the 'Alabama,' 20 pp. *Mississippi Valley Hist. Rev.*, June.

NORIZON, H. A., *Privateers of Charleston in the War of 1812*, 41 pp. Charleston, Historical Commission of Charleston.

OLIVER, F. L., USN, Commodore Oliver Hazard Perry of Newport, Rhode Island, 8 pp. *USNIP*, July.

PETERSON, H. L., *The American Sword, 1775-1945. A Survey of the Swords worn by the Uniformed Forces of the United States*, 274 pp. New Hope, Pa., Robert Halter. Includes data on naval cutlasses and officers' swords.

Philadelphia Naval Shipyard, 'Mainstay of the Fleet,' 6 pp. *Bureau of Ships Journal*, June.

PIKE, R. E., Story of the Lost Corpse, 2 pp. *American Heritage*, Summer. Discovery of the body of John Paul Jones by Gen. Horace Porter.

PRATT, FLETCHER, The Ship that Must Not Die! 9 pp. *Argosy*, Jan. Plea to save the frigate 'Constellation'; does not accept Chappelle thesis of the second ship.

RAPPAPORT, ARMIN, The Navy League of the United States, 10 pp. *South Atlantic Quar.*, April. Summary of a full-dress study.

ROARK, GARLAND, George Garland, pseud., *Star in the Rigging: a Novel of the Texas Navy*, 345 pp. $3.95. Garden City, Doubleday.

ROBINSON, D. M., Hoist Ashes or Something, 5 pp. *USNIP*, July. Crew life aboard ship, based on the *Bluejacket's Manual* of 1908.

SCHEIPS, P. J., Buchanan and the Chiriqui Naval Station Sites, 17 pp. *Military Affairs*, Summer. Almost-successful project to establish bases on Atlantic and Pacific sides of the Panama-Costa Rica border, to utilize the coal of the region and expedite communication.

SHARPE, N. W., USNR, Salt Horse to Sirloin, 8 pp. *USNIP*, May. Evolution and improvement of the USN shipboard diet.

SHAW, ROGER, *The London Naval Conference of 1930; a Study in Naval and Political Relations among the Western Powers.* MS. Ph.D. thesis, Fordham, 1946. See also Atkinson above.

SMITH, J. B., USN, The Cradle of Naval Aviation, 9 pp. *USNIP*, May. Pensacola and the early days of naval flying; also 11 pp. of Pensacola pictures.

SNOWBARGER, W. E., *The Development of Pearl Harbor.* MS. Ph.D. thesis, California, Berkeley, 1951.

STACEY, C. P., The Ships of the British Squadron on Lake Ontario, 1812-14. *Can. Hist. Rev.*, Dec. 1953.

STRAHAN, J. B., *American Colonial Administration in the Western Pacific; a Study in Civil-Military Relations.* MS. Ph.D. thesis, Ohio, Columbus, 1951.

WALKER, SIR HOVENDEN, RN, *The Walker Expedition to Quebec, 1711*, ed. G. S. Graham, 441 pp. 45*s*. Toronto, The Champlain Soc., & London, The Navy Records Soc. The admiral's account, originally published in 1720, of the expedition wrecked in the St. Lawrence.

WHITRIDGE, ARNOLD, The Trent Affair, 1861, 9 pp. *History Today*, June.

WIEAND, H. T., *The History of the Development of the United States Naval Reserve, 1889-1941.* MS. Ph.D. thesis, Univ. of Pittsburgh, 1953.

ZUILL, W. S., The Gibraltar of the West: A History of Admiralty and War Department Lands, 23 pp. *Bermuda Hist. Quar.*, Autumn, 1953.

XI. *Naval to 1939—Other Regions*

ANDERSON, M. S., Great Britain and the Russo-Turkish War of 1768-1774, 21 pp. *English Hist. Rev.*, Jan. See also Daly below.

——— Great Britain and Malta before 1798, 13 pp. *Mariner's Mirror*, May.

ATKINSON, J. D., see Sect. X.

BERGERAC, J. M. DE, Memoires d'Un Protestant, tr. from the French by Lady Fawcett, 7 pp. *Mariner's Mirror*, May. 'A French galley slave's description of an engagement in the Thames estuary between a fleet of French galleys . . . and a British convoy under the protection of H.M.S. "Nightingale" . . . on 5 September 1708.'

CARRILLO, E. A., *The British Occupation of Corsica, 1794-1796; a Study in Mediterranean Politics.* MS. Ph.D. thesis, Fordham, 1953.

CLOSE, C. C. S., RAF, An Early Attempt at Combined Operations, 4 pp. *United Services,* May. Benbow's abortive operations against Dunkirk in 1694.

DALY, R. W., First Steps into the Principles of War, 10 pp. *USNIP,* May. Analysis of Russian defeat of the Turks at Tscheme in 1770. See also Anderson above.

DOTSON, L. O., *The Sino-Japanese War of 1894-1895.* MS. Ph.D. thesis, Yale, 1951.

DRISCOLL, FRANK, Royal Yachts of England, 4 pp. *American Mercury,* July.

EDWARDS, H. W., see Sect. IV.

GWYNNE-TIMOTHY, J. R. W., see Sect. IV.

HENSEN, H. A., see Sect. IV.

HARGREAVES, REGINALD, MC, Means to an End, 11 pp. *USNIP,* June. Evolution of tactical signalling and other communications afloat and ashore.

HAYWARD, W. B., et al., Royal Visitors, 33 pp. *Bermuda Hist. Quar.,* Winter 1953. Visits of members of the royal family to Bermuda, particularly as naval officers: the future William IV, *c.* 1786; Duke of Edinburgh in 1861; George V in 1880 and 1890-91; Marquess of Milford Haven in 1912; George VI in 1913, 1928 and 1931.

HOPKINS, W. R., see Sect. X.

HUNN, MAX, Nelson's Dockyard, 2 pp. *S&S,* Fall. English Harbour, naval base at Antigua from 1725 to 1889; Nelson was senior officer there in 1786-87.

IRRMANN, R. H., *Edward Russell, Earl of Orford (1653-1727) and the Administration of the Royal Navy to 1701.* MS. Ph.D. thesis, Indiana, Bloomington, 1946.

KIRCHNER, WALTHER, *The Rise of the Baltic Question* (Univ. of Delaware Monograph Series, No. 3), 294 pp. $4.50. Newark, Del., Univ. of Del. Press, 1953. 'A history of the rôle which the eastern Baltic region has played in world affairs from the 12th century to 1919.'

LAAI, YI-FAAI, *The Part Played by the Pirates of Kwangtung and Kwangsi Provinces in the Taiping Insurrection.* MS. Ph.D. thesis, California, Berkeley, 1950.

LAWSON, J. A., *Naval Strategy during the War of the League of Augsburg.* MS. Ph.D. thesis, Univ. of Leeds, 1952.

LEASE, O. C., *Lord Admiral Thomas Seymour.* MS. Ph.D. thesis, Univ. of Pa., 1951.

LIPSCOMB, F. W., *The British Submarine,* 280 pp. $5.00. New York, Macmillan. Evolution and achievements of submarines in the Royal Navy.

LOWE, F. S., Michael Tilton, Lieutenant, His Majesty's Navy, 5 pp. *United Services,* May. Anecdotes of naval service, 1780-1815, especially in West Indies around 1799, including discovery in shark of papers leading to condemnation of an American brig.

(LEMASSON, HENRI), The French Navy under Steam, 14 pp. *USNIP,* July. 34 pictures, with brief comments, of distinctive types from a wooden ship of the line and frigate to 'Jean Bart' and 'Surcouf.'

MACKESY, P. G., *British Strategy in the Mediterranean, 1803-10.* MS. Ph.D. thesis, Oxford, 1953.

MCLARTY, R. N., *The Expedition of Major General John Vaughan to the Lesser Antilles, 1779-1781.* MS. Ph.D. thesis, Michigan, Ann Arbor, 1951.

MORRISON, C. A., *The Earl of Sandwich and British Naval Administration in the War of the American Revolution.* MS. Ph.D. thesis, Ohio State, Columbus, 1950.

NEUMANN, W. L., *The Role of the United States in the Chilean Wars of Independence.* MS. Ph.D. thesis, Michigan, Ann Arbor, 1948.

OMAN, CAROLA, *Lord Nelson* (Brief Lives, No. 12), 158 pp. (7*s* 6*d*. London, Collins) $1.75. New York, Macmillan.

PRATT, MARGARET, see Sect. IX.

PURCELL, H. G., The Royal Hawaiian Navy, 2 pp. *Nautical Research Jour.,* March.

RANKIN, R. H., USMC, As Far as the World Extends Itself: A Brief Account of the Origin and Later Development of the Royal Netherlands Marine Corps, 6 pp. *USNIP,* Aug.

SHARD, ROGER, see Sect. X.

SIMPSON, R. F., *The Naval Career of Admiral Sir George Pocock, KB, 1743-1763.* MS. Ph.D. thesis, Indiana, Bloomington, 1951.

THOMSON, D. W., Robert Fulton and the French Invasion of England, 7 pp. *Military Affairs,* Summer. Fulton's projects for submarines, torpedoes, mines and, in particular, steamboats for towing the Grand Army's flatboats across the Channel.

TUGWOOD, R. M. S., *Piracy and Privateering from Dartmouth and Kingswear, 1540-58*. MS. M.A. thesis, Univ. of London, 1953.

WARNER, OLIVER, The Glorious First of June, 7 pp. *History Today*, June.

WEBB, H. J., The Science of Gunnery in Elizabethan England, 12 pp. *Isis*, May. Includes references to naval guns; rich bibliographical footnotes.

YEHYA, L., *Military and Naval Administration in Athens in the Fourth Century, B.C., including Finance*. MS. Ph.D. thesis, Univ. of London, 1953.

XII. *World War II*

BARTLEY, W. S., USMC, *Iwo Jima, Amphibious Epic* (Marine Corps Monographs), 253 pp. Washington, GPO.

BOWEN, H. G., USN, see Sect. X.

BRYAN, E. R., *An Administrative History of the U. S. Naval Photographic Center, 1941-1951, with Recommendations for Reorganization*. MS. Ph.D. thesis, Harvard, 1953.

BUSHEY, A. C., USN, Salvage of the 'M. H. DeYoung,' 7 pp. *JASNE*, May. Transfer at sea of cargo of heavy machinery in Liberty ship, torpedoed in 1943, to another Liberty.

DATER, H. M., Airfields at Sea: The Development of Carrier Warfare, 20 pp. Supplement to *The Pegasus*, Fairchild Engine & Airplane Corp., Hagerstown, Md. Published in connection with exhibit of aircraft carrier historical material, Truxtun-Decatur Naval Museum, Washington.

FEASBY, W. R., *Official History of the Canadian Medical Services, 1939-1945*, Vol. II, *Clinical Services*, 537 pp. $5.00. Ottawa, Cloutier, 1953. Includes naval medical service.

HARKNESS, ALBERT, JR., *Retreat in Southwest Pacific, December 8, 1941-March 4, 1942*. MS. Ph.D. thesis, Brown, 1949.

HEWITT, H. K., USN, Planning Operation Anvil-Dragon, 14 pp. *USNIP*, July.

——— Executing Operation Anvil-Dragon, 15 pp. Ibid., Aug., plus 11 pp. pictures. The landings in Southern France, August 1944, by the Commander of the Eighth Fleet.

LODGE, O. R., USMC, *The Recapture of Guam* (Marine Corps Monographs), 214 pp. Washington, GPO.

MERRIFIELD, R. B., Japan's Amphibious, 8 pp. *Marine Corps Gazette*, May. Analysis of World War II techniques.

MOORE, R. J., USN, Operation Pluto, 7 pp. *USNIP*, June. 'Pipe-Line-under-the-Ocean' from England to furnish gasoline for the Normandy operations.

NORTON, FRANK, *Fighting Ships of Australia and New Zealand*, 95 pp. 15*s*. Sydney, Angus & Robertson.

Operation Neptune, 14 pp. *USNIP*. The 'sea power component' of the Normandy invasion; pictures with brief comments.

PLAYFAIR, I. S. O., et al., *The Mediterranean and Middle East*, Vol. I, *The Early Successes against Italy* (History of the Second World War, United Kingdom Military Series), 506 pp. 35*s*. London, HMSO. Carries story to May 1941.

POGUE, F. C., *The Supreme Command: European Theatre of Operations* (U. S. Army in World War II), 607 pp. $6.50. Washington, GPO for Chief of Military History.

POWELL, TED, Wartime Military-Establishment Industrial-Management Planning, 18 pp. *JASNE*, May.

RADWAY, L. I., *The Administration of the National Defense Program: A Critique of War Production Organization before Pearl Harbor*. MS. Ph.D. thesis, Harvard, 1950.

ROSKILL, S. W., RN, *The War at Sea, 1939-1945*, Vol. I, *The Defensive* (History of the Second World War, United Kingdom Military Series), 664 pp. 42*s*. London, HMSO. The British World War II counterpart of their Corbett-Newbold World War I operational history and the American Morison World War II history. Carries story through 1941; in addition to 22 chapters on operations in various theaters, general chapters include: 1. Maritime War and Maritime Strategy; 2. Maritime War—The British Shore Organization; 3. The Development of Air-Sea Coöperation; and 4. Allied and Enemy War Plans and Dispositions.

RUGE, FRIEDRICH, With Rommel before Normandy, 8 pp. *USNIP*, June. Vice-Admiral Ruge was naval adviser on Rommel's staff before Normandy invasion, helping to guess where the Allied blow would strike.

SEAGREN, L. W., USAF, The Last Fuehrer, 16 pp. *USNIP*, May. Admiral Karl Doenitz, last Head of State in Nazi Germany and his relation to the war guilt trials.

U. S. BUREAU OF MEDICINE & SURGERY, NAVY DEPT., *The History of the Medical Department of the United States Navy in World War II*, Vol. I, *A Narrative and Pictorial Volume* (NavMed P-5031), 380 pp. Paper; Vol. II, *A Compilation of the Killed, Wounded and Decorated Personnel* (NavMed P-5021), 235 pp. Washington, The Bureau, 1953-54.

U. S. BUREAU OF SHIPS, NAVY DEPT., *An Administrative History of the Bureau of Ships during World War II*, 4 vols., processed. 1, 223 pp. Washington, The Bureau, 1952. 'First Draft Narrative prepared by the Historical Section, Bureau of Ships.' Like the already-published wartime histories of Yards & Docks and Ordnance and numerous other works, these above two entries have been produced under widely decentralized auspices.

TURNER, G. B., *The Amphibious Complex, a Study of Operations at Saipan*. MS. Ph.D. thesis, Princeton, 1950.

VATCHER, W. H., JR., *Combat Propaganda against the Japanese in the Central Pacific*. MS. Ph.D. thesis, Stanford, 1950.

WELLER, D. M., USMC, Salvo-Splash! The Development of Naval Gunfire Support in World War II (Part I), 11 pp. *USNIP*, Aug.

YOKOI, TOSHIYUKU, ex-IJN, with the assistance of Roger Pineau, Kamikazes and the Okinawa Campaign, 10 pp. *USNIP*, May. By the chief of staff to the Japanese 5th Air Fleet during the Okinawa Campaign.

XIII. *Postwar Naval*

AMMON, W. B., USN, Radio Jim Creek—The Navy's Global Voice, 4 pp. *Army Information Digest*, April.

The Big Blast on 'Big Ben,' 4 pp. *Life*, 7 June. Pictures and diagram concerning fatal explosion on carrier 'Bennington.' See also 'Too Many Accidents at Sea,' 2 pp. *U. S. News & World Report*, 4 June, which also refers to Royal Navy sabotage cases.

CARNEY, R. L., USN, The Navy's Part—If War Comes, 6 pp. *Army Information Digest*, May. The C.N.O.'s counter to Air Force emphasis of its rôle.

COCHRANE, E. L., USN, The Education of Engineers, 5 pp. *JASNE*, May. The former Chief of the Bureau of Ships and head of Maritime Administration raises question of whether the Navy should train its engineers at its own Postgraduate School at Monterey or in outside technical schools.

COURT, J. M., USN, The Unity of Sea Power, 7 pp. *USNIP*, June. Calls for close coördination and pooling of resources by the seafaring nations.

DATER, H. M., see Sect. XII.

DAVIS, A. K., Bureaucratic Patterns in the Navy Officer Corps, 11 pp. *Social Forces*, Dec. 1948.

ECCLES, H. E., USN, Logistics Planning Factors, 11 pp. *JASNE*, May.

FAHLE, R. S., USN, The Panama Canal—An Auxiliary of the Fleet, 10 pp. *USNIP*, May.

HACK, J. A., Free Enterprise within the Navy: An Evaluation of Repair Ships, 10 pp. *JASNE*, May.

Her Majesty's Yacht 'Britannia,' 5 pp. *Trident*, May.

HUNTINGTON, S. P., National Policy and the Transoceanic Navy, 12 pp. *USNIP*, May. 'For decades the eyes of the Navy have been turned outward to the ocean and the blue water; now the Navy must reverse itself and look inland to where its new objectives lie.'

KINNEY, SHELDON, USN, All Quiet at Wonsan, 10 pp. *USNIP*, Aug. Story of the 861-day naval siege of the Korean seaport.

MARCUS, STEVEN, USMC, see Sect. IX.

MITCHELL, D. W., Seapower in the Twentieth Century, 5 pp. *Current History*, May.

Navy Buildings . . . Bureau of Yards & Docks serves the Navy with an Infinite Variety of Construction on Shore and at Sea, 32 pp. *Architectural Rev.*, Sept. 1952.

NICHOLS, LEE, *Breakthrough on the Color Front*, 235 pp. $3.50. New York, Random House. Racial integration in the armed forces.

Oil Round Two: U. S. Navy's Oil Reserves. *New Republic*, 5 April.

Procurement for the Fleet—A Public Trust, 5 pp. *Bureau of Ships Journal*, May. Description of various stages.

ROSENBERG, H. H., & BAIN, H. M., JR., *Program Planning for Research and Development in the Navy*, 227 pp. Processed. Syracuse, Maxwell Graduate School of Citizenship & Public Affairs, Syracuse Univ. Chapters include: 1. Science and National Security; 2. The Growth of Research & Development in the Navy; 3. Emergence of Program Planning in Research & Development in

the Navy Dept. (1944-49); 5. The Influence of Organization Structure on Program Planning; 7. The Influence of the Budgeting Program on Program Planning; 8. Congressional Influences.

SLESSOR, SIR JOHN, RAF, *Strategy for the West*, 180 pp. $3.50. New York, Morrow. The British air marshal stresses the indispensable features of air power; in a section of Ch. 4 on Navies, he concedes that a few carriers will be needed 'for some time to come,' but there will be more need for minesweepers and anti-submarine vessels.

SOUCEK, APOLLO, USN, Why We Need a Navy in the Air Age, 4 pp. *Coronet*, March.

STAPLETON, BILL, What are we doing in Spain? 6 pp. *Colliers*, 11 June. Includes remarks on naval bases.

——— Navy vs. the H-Bomb, 7 pp. Ibid., 23 July. 'The heretofore secret story of 10 warships that were unexpectedly trapped in deadly radioactive dust but saved themselves with a shower of sea water' when change in wind carried 'fallout' over task force on 1 March. See also Sherrod, Sect. I.

U. S. NAVY, ATLANTIC FLEET, *The Wardroom: A Guide Compiled for Officers of the Amphibious Force, U. S. Atlantic Fleet*, 38 pp. Processed. (Norfolk.)

U. S. DEPT. OF THE NAVY, *Report of the Committee on Organization of the Department of the Navy, 16 April 1954*. Processed, 75 cents. Washington, GPO.

WHEELER, R. V., USN, & KINNEY, S. H., USN, The Promotion of Career Officers, 22 pp. *USNIP*, June, July.

WRIGHT, J. M., USN, Military Bargain Basement, 4 pp. *USNIP*, July. Korean island of Yodo, covering entrance to Communist-held Wonsan, occupied by Marines and supported by Navy. See also Kinney above.

XIV. *Marine Art, Ship Models, Collections, Exhibits*

ANDERSON, R. C., The Framing of Models—and of Actual Ships, 2 pp. *Mariner's Mirror*, May. Further comments, amplifying earlier article (XIII, 229), followed by 4 pp. of comments by W. Salisbury.

BARBEAU, MARIUS, Seafaring Folk Art, 3 pp. *Antiques*, July. Scrimshawing, with seven reproductions. This whole issue of the journal is devoted to marine art.

BATES, A. L., Draw Them, Then Build Them, 4 pp. *S&S*, Fall. Making plans from photographs; western river steamer as illustration.

BRAGDON, R. W., *Down Easter: Building a Model of the 'Benjamin F. Packard,'* 110 pp. $4.00. Manchester, Me., Falmouth Pub. House.

CHILDS, C. D., Marine Painting: Flood Tide, 4 pp. *Antiques*, July. Early nineteenth-century American painting.

(COMSTOCK, HELEN), Paintings of the 'North Carolina' by Walke, 3 pp. *Portfolio* (Old Print Shop, Harry S. Newman), June-July. Pictures of the U. S. ship of the line at Gosport and Rio in 1837. Issue reproduces numerous other ship pictures with comments.

——— Paintings and Antiques: The Home of Mr. and Mrs. Allan Forbes, 4 pp. *Antiques*, July. Includes some maritime items.

DATER, H. M., see Sect. XII.

DODGE, E. S., Cleopatra's Barge Sails Again, 4 pp. *Antiques*, July. The new Peabody Museum addition.

HARBIN, J. W., The Flying Fish Plans, 4 pp. *Nautical Research Journal*, March.

Marine Museum, 2 pp. *Rudder*, June. Pictures from exhibits in the newly opened addition to the Marine Museum of the Seamen's Church Institute of New York.

SNIFFEN, H. S., see Sect. IX.

STRAYER, P., Try Your Hand at Modelling the 'Midway,' 20 pp. *Popular Mechanics*, Jan.-April.

XV. *Bibliography*

HITCHMAN, ROBERT, *Sighted from the Crow's Nest*. Occasional processed bibliography of books and pamphlets on the Pacific Northwest. Seattle, 2, The Compiler, 611-13th Ave., North.

MCNIFF, P. J., et al., *Catalogue of Lamont Library*, 562 pp. $7.50. Harvard, 1953. Selective list of some 39,000 titles of books for undergraduate required and recommended course reading and a general collection of other works. See especially Sects. 346, Marines; 347, Naval Science; 348, Naval Strategy and Tactics; 668, Ships and Shipping; 669, Navigation.

Index to Volume XIV

Dates in parentheses after the names of vessels indicate either the years of building or of the reference. Dates indicating the year of the reference are printed in italic type. Vessels having compound names are indexed under the initial letter of the *first* word. A list of vessels having compound names, arranged alphabetically by their *last* names, follows the Index.

Abigail, ship, 7.
Adams, U.S.S. *(1802)*, 209.
Addison Gallery, Andover, 14.
'Additional Notes on *Ella and Annie*,' by Marcus W. Price, 61-63.
Admiral Scheer, German cruiser *(1940)*, 130.
Admittance, brigantine (1802), 39.
Admittance, ship (1810), 39.
Admittance, ship (1834), 39.
Advantage, ship (1590), 10.
Adventure, ship *(1582)*, 269.
Adventure, ship (1627), 10, 11, 15, 16.
Agnes Manning, schooner *(1892)*, 122.
Albano, steamer *(1887)*, 121.
Albany, steamer (1880), 280 ff.
Albion, Robert G., 'Recent Writings in Maritime History,' 66-78, 142-156, 218-232, 300-317.
Alfred, U.S.S. *(1777)*, 49, 56.
Alida, steamer *(1855)*, 163.
Allen, George F., 237 ff.
Allen, Captain Joseph, 43.
American Merchant, steamer *(1933)*, 127.
AMERICAN NEPTUNE, THE, editorial comment, 3-4, 81-82, 159-160, 235-236.
Andersen, Captain Magnus, 110.
Anderson, Absalom E., 179 ff.
Anderson, Absalom L., 161 ff., plate 21.
Anderson, Jansen, 168 ff.
Anderson, Captain Nathan, 162.
Anderson, R. C., 13, 14, 15.
Anderson, Romer and Company, 163.
Anderson, Taylor and Company, 162.
Angler, schooner, 39.
Angola, brig (1832), 39.
Ann Eliza, brigantine *(1854)*, 257.
Answer, ship (1590), 10.
Arbella II, ship *(1930)* [replica], 107, 108.
Archangelsk, steamer *(1943)*, 132, 135.
Arctic, bark *(1871)*, 46.
Arctic, steamer (1850), 237-261, plates 25-29.
Ardent, schooner (1815), 39.
Argall, Sir Samuel, 64-65.
Ariel, H.M.S. *(1778)*, 60.
Arizona, steamer *(1895)*, 121.
Ark II, ship *(1934)* [replica], 108.
Arniston, ship *(1794)*, 102.
'Around the Horn in *Tam O'Shanter*,' document contributed by Worrall D. Prescott, 136-139, plate 16.
Ascension, ship *(1582)*, 8, 10, 11.
Aspasia, ship *(1800)*, 209.
Astell, ship (1810), 102.
Atlantic Line, 121.
Austin, steamer *(1863)*, 61, 62.
Averell, Jonathan, 52.

Baahlam, William, 243 ff.
Bacon, Jacob, 59.
Baily, George, 245.
Baker, Mathew, 8, 11, 17, 266 ff.
Baker, William A., 4; 'Early Seventeenth-Century Ship Design,' 262-277; 'The *Mayflower* Problem,' 5-17.
Banks, Sir Joseph, 216-217.
Balena, ship *(1819)*, 43.
Baltic, brig (1821), 39.
Baltic, steamer (1850), 240.
Barclay, Captain H. W., 124.
Barrett, Andrew, 177.
Baskerville, steamer *(1946)*, 133, 135.
Bath City, steamer (1880), 116, 118, 134.
Bath City, steamer (1899), 124, 134.
Bay State, steamer *(1853)*, 202.
Behaim, Martin, 187.
Benjamin B. Odell, steamer (1911), 283.
Benjamin Tucker, ship *(1850)*, 45.
Berwickshire, ship, 102.
Berwind, J. E., 123.
Berwind, steamer *(1904)*, 134.
Betts, Guernsey B., 169 ff.
Bibliography, 66-78, 142-156, 218-232, 300-317.
Bingham, William, 54-56.
Birmingham City, steamer *(1950)*, 133, 135.

Bishop, Daniel H., 169 ff.
Black Hawk, ship *(1861)*, 46.
Blanch, John, 59.
Blockade running, 61-63.
Blumer and Company, 122.
Boat, small, 61.
Bonneau, Captain F. N., 62.
Borough, William, 10, 11.
Bosforo, steamer (1882), 134.
Boston, ship *(1777)*, 49n.
Boston City, steamer (1893), 122, 123, 125, 134.
Boston City, steamer (1916), 125, 130, 135.
Boston City, steamer (1920), 126, 128, 130, 132, 135.
Bowring, Thomas B., 121.
Bradford, Gershom, 'The Ezra Westons, Shipbuilders of Duxbury,' 29-41, plates 5-6.
Bradford, John, 49, 51, 53.
Bradford, Captain John, 35 ff.
Bralia, steamer *(1883)*, 134.
Bramin, ship (1816), 39.
Brewington, Marion V., 'Notes on the Cross-Staff,' 187-191, plates 23-24; contributed document, 215, 215-216.
Brinckerhoff, Captain John H., 182, 185.
'Bristol City Line of Bristol, England, The,' by Grahame E. Farr, 115-135, plates 13-15.
Bristol City, steamer (1879), 116, 117, 134.
Bristol City, steamer (1899), 124, 125, 134.
Bristol City, steamer (1920), 126, 127, 129, 135.
Bristol City, steamer *(1946)*, 132, 135.
British East India Company, 101 ff.
Brooklyn City, steamer (1881), 116, 117, 124, 134.
Brother Jonathan, steamer (1850), 200.
Brown, Alexander Crosby, 82; 'Some Replicas of Historic Ships,' 105-114, plates 11-12; 'Women and Children Last: The Tragic Loss of the Steamship *Arctic*,' 237-261.
Brown, James, 237 ff., plate 30.
Brown, Mary Elizabeth, 237.
Brown, William H., 237 ff.
Bryant, John, 139.
Burhill, steamer *(1951)*, 133, 135.
Burke, Captain William, 58 ff.
Burns, George, 242 ff.
Bushnell, Edward, 265.
Butland, John, Jr., 217.

Caesar, steamer *(1910)*, 134.
California, steamer *(1875)*, 213.
Cambria, steamer *(1854)*, 252.
Camillus, ship (1811), 39.
Cardwell, Samuel, 52, 56, 57, 59.
Carey, Captain J. J., 125.
Central Hudson Steamboat Company, 283.
Ceres, brig (1828), 39.
Champlin, George, 52, 56.
Chapelle, Howard I., 61.
Chaplin, Captain W. R., 'A West Indian Trader,' 83-104, plates 9-10; 'Sir Samuel Argall, Kt., of East Sutton, an Elder Brother of Trinity House and Sometime Governor of Virginia,' 64-65.
Chapman, R., 11, 17.
Chariot, ship *(1851)*, 44.
Chauncey Vibbard, steamer *(1868)*, 177, 178, 280, 282.
Chenny, William, 52, 59.
Chepman, steamer (1944), 135.
Chesapeake, steamer *(1863)*, 62.
Chew, Captain Samuel, 48 ff.
Chicago City, steamer (1892), 122, 125, 126, 134.
Churchill, Joseph, 217.
Citta de Monreale, steamer *(1949)*, 132, 135.
City of Chicago, steamer *(1885)*, 121.
Clark, Captain Arthur H., 33.
Clark, William, 117.
Clark, William Bell, contributed document, 298-299; 'The Continental Brigantine *Resistance*,' 47-60.
Clermont II, steamer (1909) [replica], 112 ff.
Cluff, Dohn A., 'Lobster Fishing on the Maine Coast Past and Present,' 203-208.
Coale, Griffith Baily, 106.
Cobb, Albert, 212-214.
Cole, Captain G. W., 44.
Collector, schooner (1818), 39.
Collins, Charles, 59.
Collins, Edward K., 237-261, plate 30.
Collins, Isaac, 59.
Collins, Captain Jason, 'Loss of the Steamship *Independence*,' with introduction by John Richards, 192-202.
Collins, Captain Joseph W., 13, 14.
Collins Line, 237-261.
Colon, steamer *(1875)*, 213.
Colonial Society of Massachusetts, 81.
Columbia, sloop (1799), 39.
Columbus, Christopher, 187.
Comedy, ship *(1850)*, 45.
Comet, ship *(1871)*, 46.
'Continental Brigantine *Resistance*, The,' by William Bell Clark, 47-60.
'Contract for a Vessel Built at Kennebunk, 1773,' document contributed by Kenneth Roberts, 217.
Coombe Dingle, steamer *(1920)*, 126, 135.
Copeland, Charles H. P., contributed document, 139.
Cornell, Major Thomas, 176 ff.
Cornell, William H., 177, 182.
Cortes, steamer (1852), 200.
Couch, Lieutenant John, 216-217.
Crane, ship *(1590)*, 10, 11, 17.

Crenks, Captain Montague E., 125.
Cross-Staff, 187-191, plates 23-24.
Cufic, steamer *(1900)*, 123.
Curlew, schooner *(1838)*, 192.
Cushman, Robert, 7.
Cwm Donkin, bark *(1881)*, 118.
Cyprian Prince, steamer *(1936)*, 127, 135.

Daniel Drew, steamer (1860), 164, 177, 178, 280, 282.
Daniel Webster, steamer (1851), 201.
Davis, John, 190.
Dawsett, Captain Samuel J., 44.
Dawson, Robert, 52.
Dean Richmond, steamer *(1901)*, 287.
Deane, Sir Anthony, 265 ff.
Defiance, H.M.S. *(1807)*, 91.
Delano, Samuel, 29, 30.
Delaware and Hudson Canal Company, 162.
Delaware, University of, 4.
Deshon, John, 51.
Dignon, John, 244.
Dillon, Richard H., contributed document, 216-217.
Discovery, pinesse *(1607)*, 106.
Dispatch, brig (1815), 39.
Dispatch, brig (1818), 39.
Dod, John W., 117.
Dodge, Ernest S., 3-4, 81-82, 159-160, 235-236.
Donegal, steamer *(1863)*, 62.
Dorian, Mate, 248 ff.
Dorsett, Edward Lee, M.D., 'Hawaiian Whaling Days,' 42-46, plates 7-8; '"This Day Comes in Fine," The Log of the Brig *Selma*,' 212-214.
Dove II, ship *(1934)* [replica], 108.
Dray, schooner (1825), 39.
Duchesne, Captain, 256 ff.
Duke of Sussex, ship, 103.
Duke of York, ship (1817), 102, 103.
Duro, Fernandez, 109.

Eagle, brig *(1841)*, 44.
Eagle, schooner (1785), 39.
'Early Seventeenth-Century Ship Design,' by William A. Baker, 262-277, plates 31-32.
Eastern Queen, steamer (1857), 192.
Eckford, Henry, 209-210.
'Edmund Fanning and Henry Eckford,' by Phyllis DeKay Wheelock, 209-210.
'1849 Statement on the Habits of Right Whales by Captain Daniel McKenzie of New Bedford, An,' document contributed by John P. Harrison, 139-141.
Eliza Warwick, ship (1836), 32, 39.
Elizabeth Jonas, ship (1596), 274, 275.
Ella and Annie, steamer (1860), 61-63.
Ellery, William, 51.
Emil, brigantine *(1884)*, 120.
Emily, ship *(1806)*, 91.
Empire Camp, steamer *(1943)*, 133, 135.
Empire Grey, steamer (1944), 135.
Empire Mariner, steamer *(1939)*, 132, 135.
Empire Nigel, steamer (1943), 132, 135.
Empress of China, ship *(1784)*, 298-299.
Enterprise, ship *(1833)*, plate 7.
Eppleworth, ship *(1813)*, 98.
Equator, ship *(1819)*, 43.
Erika, steamer *(1903)*, 122.
Europa, steamer *(1854)*, 256.
Exchange, schooner (1816), 39.
Exeter City, steamer (1887), 121, 122, 126, 127, 134.
Exeter City, steamer *(1933)*, 126, 135.
'Exports to the Cape of Good Hope,' document contributed by Charles H. P. Copeland, 139.
Express, schooner, 39.
'Ezra Westons, Shipbuilders of Duxbury, The,' by Gershom Bradford, 29-41, plates 5-6.
Ezra and Daniel, brig (1805), 39.

Fairmount Park, steamer *(1946)*, 131, 135.
Fanning, Captain Edmund, 209-210.
Farr, Grahame E., 'The Bristol City Line of Bristol, England,' 115-135, plates 13-15.
Fausta, steamer (1922), 135.
Federal Eagle, brig (1800), 39.
Fee, Robert G. C., 106.
Fenelon, schooner (1806), 39.
'First Successful Marine Railway,' document contributed by Marion V. Brewington, 215.
Fishing, lobsters, 203-208.
'Five Thousand Miles in a Fifty-Footer,' by John Gordon, 18-29, plates 1-4.
Flora, schooner (1810), 39.
Flying Serpent, tug *(1900)*, 124.
Folger, Captain Elisha, 43.
Folster, George T., 19 ff., plates 1, 4.
Forbes, Robert B., 259 ff.
Foresight, ship (1570), 266.
Founier, George, 265.
Francis Russell Hart Nautical Museum, 13, 14.
Franklin, ship (1826), 40.
Freja, steamer *(1881)*, 119.
Fresno City, steamer *(1940)*, 130.
Frost, Captain Ferdinand, 176.
Furttenbach, Joseph, 265.

Galileo, steamer *(1895)*, 119.
Ganges, brig (1826), 40.
Garcia, see Palacio, Diego Garcia de.
Gardner, Captain Edmund, 43.
Gathorne, steamer (1873), 116.
Geib, John L., 256.
Gershom, brig (1806), 40.

Gerson, Levi ben, see Levi ben Gerson.
Gibilterra, steamer (1881), 134.
Gilbert, W. W., 260.
Girard, Stephen, 215.
Glenside, steamer (1920), 126, 135.
Globe, brig (1822), 40.
Gloucester City, steamer (1881), 117, 119, 134.
Gloucester City, steamer (1889), 122.
Gloucester City, steamer *(1936)*, 127, 129, 130, 132, 135.
Golden Cross Line, 126.
Golden Grove, brig (1815), 40.
Golden Phoenix, ship *(1620)*, 64.
Goodspeed, ship *(1607)*, 106.
Gordon, John, 'Five Thousand Miles in a Fifty-Footer,' 18-29, plates 1-4.
Gourlay, Robert J., 243 ff.
Grann, Captain Paul F., 248 ff.
Granville, H.M.S. *(1778)*, 55.
Green, Captain John, 298-299.
Greenport, steamer (1866), 192n.

Half Moon II, ship (1909) [replica], 111.
Hampton, U.S.S. *(1777)*, 52, 53.
Harrison, John P., contributed document, 139-141.
Hartage, Captain Ernest H., 108.
Hasbrouck, John L., 166.
'Hawaiian Whaling Days,' by Edward Lee Dorsett, M.D., 42-46, plates 7-8.
Hawke, schooner *(1776)*, 47.
Hawkes, Isaac, 59.
Hayes, Joseph, 59.
Hector, ship *(1807)*, 91 ff.
Herald, brig (1822), 40.
Highlander, steamer (1835), 167, 168.
Highlander, steamer *(1915)*, 290.
Hilhouse, George, 115.
Hilhouse, Hill and Company, 115.
Hilhouse, James, 115.
Hilhouse, James M., 115.
Hill, Charles, 115 ff.
Hill, Charles G., 116, 117, 126, 131.
Hill, Charles L., 126, 131.
Hill, Edward B., 117.
Hill, Edward S., 117, 126.
Hinnman, Captain Elisha, 49.
Hinton, William, 191.
Hogan, Timothy, 121.
Holland, Stewart, 249.
Holly, Hobart H., 'More on *Sparrowhawk*,' 211-212.
Honolulu, brig *(1841)*, 44.
Honolulu, whaling, 42-46.
Hope, ship *(1811)*, 209, 210.
Hope, ship (1841), 35, 37, 40, plate 5.
Hopkins, Commodore Esek, 47 ff.
'Horse Biscuits for the Royal Navy,' document contributed by Richard H. Dillon, 216-217.
Houqua, ship *(1833)*, plate 7.
Howland, Captain Arthur, 30, 31.
Hudson River Day Line, 185, 186.
Huntress, steamer (1838), 192.
Huron, ship *(1854)*, 254, 255.
Huycke, Harold D., 'Voyages of *Star of Poland*,' 210.
Hythe, ship, 102.

Independence, steamer (1850), 192 ff.
'Instructions to Captain John Green, Commander of *Empress of China*, for the First Voyage to China of a Ship Carrying the American Flag,' document contributed by William Bell Clark, 298-299.
Iroquois, U.S.C.G. *(1952)*, 24.

Jack, James R., 13, 14.
James, Henry R., 117.
James W. Baldwin, steamer (1860), 164, 182.
Jefferson, sloop *(1812)*, 210.
Jenkins, Lawrence W., 'Privateer Sloop *Jefferson*,' 210-211.
Jersey City, steamer (1882), 117, 119, 124, 134.
Jersey City, steamer *(1940)*, 130.
Jerusha, sloop *(1793)*, 30, 31, 32, 36, 40.
Jervis Bay, steamer *(1940)*, 130.
Jonah, ship *(1809)*, 96 ff.
Jonathan Bourne Whaling Museum, 34.
Jones, Captain Christopher, 6, 16.
Jones, Captain Richard, 124.
Jones, William, 215, 216.
Joshua Bates, ship (1831), 37, 38, 40.
Juarez, steamer *(1868)*, 200n.
Julian, ship (1828), 40.
Julian, ship *(1871)*, 46.
Julius Caesar, ship (1804), 40.
Juno, brig *(1852)*, 44.

Kanal, steamer *(1950)*, 135.
Kansas City, steamer (1893), 122, 123, 125, 134.
Kenbane Head, steamer *(1940)*, 130.
Kennebec, steamer (1889), 192.
Kent, ship *(1806)*, 89, 90.
Kephalos, steamer *(1928)*, 134.
Ketcham, Captain John, 166.
Kingsley, steamer *(1900)*, 124.
Kohola, ship *(1871)*, 46.
Kosugi, Jun, 19 ff., plate 4.
Kyrenia, steamer *(1936)*, 127, 135.

Lagoda, ship (1826), 33, 40.
Lavolta, schooner (1870), 108.
Lebanon, ship *(1854)*, 255.
Leeds, William, 52, 56, 59.

Levant, brig (1825), 40.
Levi ben Gerson, 187.
Lief Erikson, boat (1936), 111.
Lion, brig (1839), 40.
Llandaff City, steamer (1882), 117, 120, 124, 134.
'Lobster Fishing on the Maine Coast Past and Present,' by Dohn A. Cluff, 203-208.
Log, patent, 214.
London City, steamer *(1951)*, 133, 135.
Lone Star, steamer *(1887)*, 121.
Loosestrife, H.M.S. *(1943)*, 130.
'Loss of the Steamship *Independence*,' by Captain Jason Collins, introduction by John Richards, 192-202.
Lothian, H. V., 127.
Luce, Captain James C., 237 ff.

M. Martin, steamer *(1887)*, 285.
M. J. Foley, bark *(1881)*, 119.
Magan, James E., 212-214.
Magellan, Ferdinand, 187.
Magnet, schooner, 40.
Magoun, F. Alexander, 13, 14.
Mahee, Captain James, 44.
Makee, James, see Mahee.
Malaga, brig (1827), 40.
Malvern, U.S.S. *(1864)*, 62, 63.
Manteo, ship (1843), 38, 40.
Marathon, steamer *(1881)*, 118.
Margaret, brig (1820), 40.
Margaret and John, ship, 7.
Maria, sloop (1801), 40.
Marina, ship *(1812)*, 97.
Marjoribanks, Sir John, 101 ff.
Marjoribanks, Stewart, 102.
Marjoribanks, Captain William, 102.
Mars, ship *(1820)*, 43.
Mary Powell, steamer (1861), 161-186, 278-297, plates 17-20, 22.
Mary Rose, ship (1623), 10, 11.
Mattakeesett, ship (1833), 40.
Maury, Lieutenant Matthew F., 139-141.
May Brown, schooner (1892), 108.
'*Mayflower* Problem, The,' by William A. Baker, 5-17.
Mayflower, ship *(1620)*, 5-17, 105, 262-277.
McCabe, Peter, 253 ff.
McKenzie, Captain Daniel, 139, 141.
Measurement of ship tonnage, 5-17.
Mellish, ship *(1777)*, 49.
Mendoza, bark *(1880)*, 117.
Menevian, steamer *(1933)*, 126, 135.
Merlin, steamer *(1854)*, 256.
Mermaid, ship *(1777)*, 53, 54.
Merrimac II, C.S.S. *(1951)* [replica], 107.
Messenger, brig (1816), 40.
Messenger, brig (1834), 40.
Meteor, ship *(1853)*, 198.
Millidge, Captain L. H., 127, 128.
Minerva, ship (1808), 40.
Minerva, ship (1834), 40.
Mirror, schooner (1834), 40.
Monitor, U.S.S. (1951) [replica], 107.
Monticello, ship *(1871)*, 46.
Montreal City, steamer *(1933)*, 127, 129, 135.
Montreal City, steamer *(1946)*, 131, 135.
Moore, Henderson, 255.
'More Foreign Mud,' document contributed by Marion V. Brewington, 215-216.
'More on *Sparrowhawk*,' by Hobart H. Holly, 211-212.
Mullins, William, 6.
Musée de la Marine, Paris, 188.
Museums, Addison Gallery, Andover, 14; Francis Russell Hart Nautical Museum, 13, 14; Jonathan Bourne Whaling Museum, 34; Musée de la Marine, Paris, 188; Peabody Museum of Salem, 188, 190; Pilgrim Hall, 14; Plimouth Plantation, 16; Prins Hendrick, 187-188; Rijksmuseum, 187, 188; Scheepvaart Museum, 187, 188; Science Museum, Boston, 13; Science Museum, London, 187; Smithsonian Institution, 13, 14.

Namaqualand, steamer *(1919)*, 135.
Nandi, steamer (1943), 135.
Navigation; cross-staff, 187-191, plates 23-24; patent log, 214.
Neptune, brig (1829), 40.
Nevada, steamer *(1853)*, 200.
Nevas, steamer (1890), 134.
Newton, Sir Isaac, 214.
Newton, Captain W., 125.
New England, steamer (1833), 192.
New Orleans, steamer (1811), 114.
New World, steamer (1848), 282.
New York, U.S.S. *(1802)*, 209.
New York City, steamer (1879), 116, 117, 134.
New York City, steamer (1907), 124, 132, 134.
New York City, steamer (1917), 125, 130, 135.
New York City, steamer *(1950)*, 133, 135.
New York and Liverpool United States Steamship Company, 239.
New York and Porto Rico Steamship Company, 123.
New York and Yucatan Steamship Company, 121.
Nicolo, Pre Theodoro de, 265.
Nigerian, steamer (1925), 135.
Nina II, ship (1892) [replica], 109, 110.
Niphon, U.S.S. *(1863)*, 62.
North Atlantic Steamship Company, 121.

'Note on American Small Craft,' by Eric Steinfeldt, 61.
'Notes on the Cross-Staff,' by Marion V. Brewington, 187-191, plates 23-24.

Ocean, schooner, 40.
Ocean, ship *(1860)*, 45, 46.
Ocean, steamer *(1853)*, 202.
Olney, Captain James, 57.
Olympia, steamer *(1893)*, 120.
Omega, ship *(1853)*, 198.
Oneca, ship (1829), 40.
Opium Trade, 215.
Orestes, ship (1814), 99.
Oriole, brig (1837), 40.
Osprey, brig *(1841)*, 44.

Pacific, steamer (1850), 239.
Paiea, ship *(1871)*, 46.
Palacio, Diego Garcia de, 265.
Pallas, bark (1825), 40.
Palmyra, steamer *(1881)*, 119.
Panama, steamer (1848), 200.
Panope, schooner (1820), 40.
Paris, Admiral, 13.
Parker, Daniel, 298-299.
Paulina, brig (1826), 40.
Peabody Museum of Salem, 188, 190.
Pelly, Sir John, 103.
Pepys, Samuel, 266, 270.
Peters, Captain Arthur B., 117.
Phillips, Captain S. J., 125.
Phoenix, schooner (1794), 40.
Phoenix, ship (1612), 10, 11.
Pierce, A., 44.
Pilgrim, brig (1825), 34.
Pilgrim Hall, 14.
Pinar del Rio, steamer *(1933)*, 127, 135.
Pinta II, ship (1892) [replica], 109, 110.
Pioneer, brig (1824), 40.
Pixley, Captain William, 83-104.
Plimouth Plantation, 16.
Ploughboy, ship *(1806)*, 215-216.
Pocahontas, ship *(1833)*, plate 7.
Pomona, schooner (1827), 40.
Portland, steamer (1898), 192.
Powell, Mary L., 164.
Powhatan, ship, 192.
Prescott, Captain Charles D., 136-139, plate 16.
Prescott, Mary J. R., 136-139, plate 16.
Prescott, Worrall D., contributed document, 136-139, plate 16.
Price, Marcus W., 'Additional Notes on *Ella and Annie*,' 61-63.
Princess Charlotte, ship *(1828)*, 100.
Prins Hendrick Museum, 187, 188.
Prissy, schooner (1789), 40.
Pritchard, L. A., 14.
'Privateer Sloop *Jefferson*,' by Lawrence W. Jenkins, 210-211.
Prometheus, steamer (1850), 201.
Progreso, steamer (1885), 121, 134.
Prudence, ship (1582), 10, 11.

'Queen of the Hudson,' by Donald C. Ringwald, 161-186, 278-297, plates 17-22.
Queen, steamer *(1952)*, 24.
Queen Charlotte, ship *(1800)*, 216-217.
Quittance, ship (1590), 10, 11.

R. E. Lee, steamer *(1863)*, 62.
Railway, marine, 215.
Randall, Thomas, 298.
Ranger, schooner (1834), 40.
Rappleyea, Captain George W., 108.
Reese, Captain D. N., 127.
Reform, sloop (1830), 40.
Regina, steamer *(1892)*, 120.
Renown, ship (1830), 40.
Republican, boat *(1794)*, 61.
Resistance, brigantine *(1777)*, 47-60.
Resolution, ship *(1806)*, 91.
Rheingold, steamer *(1935)*, 132, 135.
Rhine, ship *(1808)*, 95 ff.
Rhondda, steamer *(1885)*, 119.
Richards, John, introduction to 'Loss of the Steamship *Independence*,' by Captain Jason Collins, 192-202.
Richardson, Duck and Company, 116.
Rijksmuseum, 187, 188.
Ringwald, Donald C., 'Queen of the Hudson,' 161-186, 278-297, plates 17-22.
Rising States, schooner (1798), 40.
Rising Sun, brigantine (1796), 40.
Roald Amundsen, boat (1939), 111.
Robert L. Stevens, steamer *(1853)*, 163.
Roberts, Kenneth, 217.
Robin Hood, ship *(1846)*, 45.
Rogers, J. W., 244.
Romer, William F., 163.
Romer and Tremper, 164.
Rupert, ship (1666), 273.

Sagadahoc, steamer (1866), 192n.
Saint George, ship *(1860)*, 45.
Saint Lawrence, ship (1833), 40.
Saint Michael, schooner (1817), 40.
Saltonstall, Charles, 190.
Salumith, schooner (1805), 40.
San Demetrio, steamer *(1940)*, 130.
Santa Clara Steamship Company, 127.
Santa Ina, steamer *(1946)*, 132, 135.

Santa Maria II, ship (1892) [replica], 109, 110.
Sarstoon, steamer (1925), 135.
Saumarez, Henry de, 214.
Scandinavian, steamer *(1884)*, 120.
Scheepvaart Museum, 187, 188.
Schwarzwald, steamer (1922), 132, 135.
Science Museum, Boston, 13.
Science Museum, London, 187.
Seadrift, schooner (1832), 40.
Seller, John, 189.
Selma, brig (1855), 212-214.
Shaw, James, 49.
Shaw, Nathaniel, Jr., 47 ff.
Shaw, Samuel, 54, 298.
Shenandoah, C.S.S. *(1864)*, 46.
Ship design, 262-277.
Shipbuilding, New England, 29-41, 217; seventeenth-century, 262-277.
Shipwreck, steamer *Arctic*, 237-261.
Shizume, Moriharu, 19 ff., plate 4.
'Sir Isaac Newton on Saumarez Patent Log,' by Herbert R. Spencer, 214.
'Sir Samuel Argall, Kt., of East Sutton, County Kent, an Elder Brother of Trinity House and Sometime Governor of Virginia,' by W. R. Chaplin, 64-65.
Smith, Jabez, 52, 59.
Smith, James, 252.
Smith, Captain John, 7, 189.
Smith, Captain S. G., 130.
Smithsonian Institution, 13, 14.
Smyrna, brig (1825), 34, 41.
Smyrna, brig (1839), 41.
Soestdyk, steamer (1909), 112.
'Some Replicas of Historic Ships,' by Alexander Crosby Brown, 105-114, plates 11-12.
Sophia, schooner (1787), 41.
Sophia, steamer *(1853)*, 200.
Sotero, steamer (1882), 134.
Soule, Captain Freeman, 37.
Southampton, Earl of, 7.
Sparrowhawk, ship *(1623)*, 211-212.
Speedwell, ship *(1620)*, 6.
Speedwell, ship *(1861)*, 46.
Spencer, Herbert R., 'Sir Isaac Newton on Saumarez Patent Log,' 214.
Sprague, Captain Seth, 35.
Star of Holland, ship *(1915)*, 210.
Star of Poland, ship *(1915)*, 210.
Star of the East, steamer (1866), 193.
Stedman, Captain Giles, 127.
Steinfeldt, Eric, 'Note on American Small Craft,' 61.
Stevens, Bryan W., 19 ff., plates 2, 3, 4.
Stinson, Thomas, 247.
Strathleven, steamer *(1884)*, 120.
Sturmy, Samuel, 191.
Susan Constant, ship *(1607)*, 106.
Swiftsure, ship *(1625)*, 65.

Taian Maru, steamer *(1891)*, 134.
Tam O'Shanter, ship *(1884)*, 136-139.
Tanaka, Yoshio, 19 ff.
Taylor, James A., 162.
Taylor, William H., 117.
Thetis, ship *(1828)*, 101.
Thibault, Carrow, 298-299.
'"This Day Comes in Fine," The Log of the Brig *Selma*,' by E. Lee Dorsett, 212-214.
Thomas Cornell, steamer *(1865)*, 176 ff.
Thomas Coutts, ship (1817), 102, 103.
Thomas Powell, steamer (1846), 163 ff.
Tillinghast, Daniel, 51.
Timbotta, Giorgio, 264.
Tobin, Patrick, 250, 258.
Tonnage, Measurement of, 5-17.
Toronto City, steamer *(1936)*, 127, 129, 135.
Torr Head, steamer *(1933)*, 127, 129, 135.
Tremontana, ship (1586), 10, 11.
Trenton, brig (1836), 41.
Trinity House, 64-65.
Triton, schooner (1815), 41.
Trumbull, U.S.S. *(1777)*, 49.
Twain, Mark, 44.
Two Friends, brig *(1795)*, 32.
Two Friends, brig (1819), 41.
Tyler, Doctor David B., 4.

Undine, ship (1831), 41.
Undine, yacht *(1884)*, 61.
Union, schooner (1803), 41.
Union Flag, schooner *(1880)*, 118.
Utrecht, R.N.S. *(1909)*, 112.

Valacia, steamer *(1946)*, 133, 135.
Van Santvoord, Alfred, 177.
Vandalia, ship (1835), 41.
Vanderbilt, Commodore Cornelius, 192.
Vanguard, ship (1586), 266, 271.
Vesta, steamer *(1854)*, 244 ff., plate 29.
Victoria, ship *(1832)*, 44.
Victoria, ship *(1871)*, 46.
Viking, boat (1893), 110.
Virent, steamer *(1890)*, 120.
Virginia II, C.S.S. *(1951)* [replica], 107.
Virginia, schooner (1834), 41.
Virginia Company, 7.
Visger, Alfred H. S. S., 117.
Volant, schooner (1798), 41.
Volunteer, ship *(1811)*, 209, 210.
Volunteer, schooner (1833), 37, 41.
'Voyages of *Star of Poland*,' by Harold D. Huycke, 210.
Vulture, brig, 41.

Wadsworth, Captain Alexander, 35.
Wait, William K., 117.
Wall, Captain A., 255.
Wansley, Arthur H., 117.
Warren, James, 56 ff.
Warren, brig (1809), 41.
Warrington, Captain Arthur A., 290.
Wataridori, ketch (1952), 18-28, plates 1-4.
Waters, Captain Daniel, 57.
Watson, Jonas, 117.
Waverly, brig *(1832)*, 44.
Webb, Captain A. L., 129.
Weiss, Captain Thomas L., 118, 119, 121, 122.
Wells City, steamer *(1885)*, 121, 126, 134.
Wells City, steamer *(1951)*, 132, 135.
'West Indian Trader, A,' by Captain W. R. Chaplin, 83-104, plates 9-10.
Weston, Alden, 38.
Weston, Ezra, 29-41.
Weston, Captain Gershom B., 37, 38.
Weston, Nathaniel, 210.
Whaling, 42-46, 139-141.
Wheelock, Phyllis DeKay, 'Edmund Fanning and Henry Eckford,' 209-210.
Whipple, William, 51.
Wickes, Captain I. C., 182, 185.
Wilde, Thomas, 245.
William Roach, ship *(1833)*, plate 7.
William Rotch, ship, see *William Roach*, ship.
William G. Hewes, steamer *(1860)*, 61-63.
Winsor, Joshua, 29, 30.
Winsor, Nathaniel, 29, 30.
'Women and Children Last: The Tragic Loss of the Steamship *Arctic*,' by Alexander Crosby Brown, 237-261, plates 25-30.
Woodruff, Samuel M., 251.
Wright, Edward, 189.

Yankee, bark *(1860)*, 46.
Young Tom, 215-216.

List of vessels having compound names arranged alphabetically by their last names

Amundsen, Roald
Annie, Ella and
Baldwin, James W.
Bates, Joshua
Bay, Jervis
Brown, May
Caesar, Julius
Camp, Empire
Charlotte, Princess
Charlotte, Queen
Chicago, City of
China, Empress of
City, Bath
City, Birmingham
City, Boston
City, Bristol
City, Brooklyn
City, Chicago
City, Exeter
City, Fresno
City, Gloucester
City, Jersey
City, Kansas
City, Llandaff
City, London
City, Montreal
City, New York
City, Toronto
City, Wells
Constant, Susan
Cornell, Thomas
Coutts, Thomas
Daniel, Ezra and
Demetrio, San
Dingle, Coombe
Donkin, Cwm
Drew, Daniel
Eagle, Federal
East, Star of the
Eliza, Ann
England, New
Erikson, Lief
Flag, Union
Foley, M. J.
Friends, Two
George, Saint
Grey, Empire
Grove, Golden
Hawk, Black
Head, Kenbane
Head, Torr
Hewes, William G.
Holland, Star of
Hood, Robin
Ina, Santa
John, Margaret and
Jonas, Elizabeth
Jonathan, Brother
Lawrence, Saint
Lee, R. E.
Manning, Agnes
Maria, Santa
Maru, Taian
Merchant, American
Michael, Saint
Moon, Half
Monreale, Citta de
Nigel, Empire
Odell, Benjamin B.
Orleans, New
Park, Fairmount
Phoenix, Golden
Poland, Star of
Powell, Mary
Powell, Thomas
Prince, Cyprian
Queen, Eastern
Richmond, Dean
Rio, Pinar del
Roach, William
Rose, Mary
Rotch, William
Scheer, Admiral
Serpent, Flying
Shanter, Tam O'
Star, Lone
State, Bay
States, Rising
Stevens, Robert L.
Sun, Rising
Sussex, Duke of
Tucker, Benjamin
Vibbard, Chauncey
Warwick, Eliza
Webster, Daniel
World, New
York, Duke of

THE CHILDS GALLERY

169 NEWBURY STREET BOSTON, MASS.

Specializes in the purchase and sale of

NAVAL and MARINE PAINTINGS AND PRINTS

Ships' Portraits—Port Views—Naval Engagements—Maritime Events of Historical Interest and Importance. Works by noted artists, old and modern.

We particularly want fine paintings and prints of American interest, and by such artists as CORNÉ, *the* ROUX FAMILY, PELLEGRIN, BIRCH, SALMON, LANE, BUTTERSWORTH, WALTERS, MacFARLANE, *etc.*

ESTABLISHED 1841

OLD and MODERN MARINE PAINTINGS ALWAYS ON HAND

VOSE

GALLERIES of Boston
INCORPORATED
559 Boylston Street

ALFRED W. PAINE,

CAROLA W. PAINE, *Successor*

BOOKS RELATING TO SALT WATER

113 EAST 55TH STREET, NEW YORK

THIS Shop has dealt exclusively in maritime books since 1930, and always carries a large stock of Interesting and Valuable Books relating to the History of Ships and Shipping, Navigation, Voyages of Discovery, Whaling, Shipbuilding, Local Marine History, *&c., &c.*

*** The Shop is interested in buying and selling single items or entire collections. Catalogues are issued, and inquiries are cordially invited.

PICTORIAL
AMERICANA
Relating to the Sea

SAILING SHIPS
STEAM SHIPS
NAVAL VESSELS
SAILING YACHTS

VIEWS OF PORTS

GENRE
THE SAILOR - TAR

The OLD PRINT SHOP
Harry Shaw Newman
150 Lexington Ave. *at* 30*th* St., *New York*
Tel. MUrray Hill 3-3950 ~ Established 1898

*

EARLY
AMERICAN
PAINTINGS

*

William A. Jeffery
34 LaGrange Street, Boston 16, Mass.
HUbbard 2-6358

An Invitation

The United States Naval Institute cordially invites readers of *The American Neptune* to become associate members of the Naval Institute. For annual dues of three dollars, members receive the U. S. Naval Institute *Proceedings* every month and are entitled to liberal discounts on books published by the U. S. Naval Institute.

A sample copy of the U. S. Naval Institute *Proceedings* and a membership application will be sent upon request.

U. S. NAVAL INSTITUTE

ANNAPOLIS, MARYLAND

Editors

Walter Muir Whitehill
The Boston Athenæum

M. V. Brewington
Cambridge, Maryland

Alexander C. Brown
Warwick, Virginia

Howard I. Chapelle
Cambridge, Maryland

Storer B. Lunt
New York City

Samuel Eliot Morison
Harvard University

Vernon D. Tate
M. I. T.

Managing Editor

Ernest S. Dodge
Peabody Museum of Salem

Editorial Advisory Board

Robert G. Albion
Harvard University

William A. Baker
Quincy, Massachusetts

Lloyd A. Brown
Peabody Institute, Baltimore

Edward G. Brownlee
Philadelphia, Pennsylvania

Charles D. Childs
Boston, Massachusetts

William Bell Clark
Brevard, North Carolina

Edward L. Cochrane
Vice Admiral, U.S.N. (ret.)

Charles H. P. Copeland
Peabody Museum of Salem

Carl C. Cutler
Marine Historical Association

Elwin M. Eldredge
New York City

Robert E. Farlow
New York City

John B. Heffernan
Rear Admiral, U.S.N. (ret.)

John R. Herbert
Quincy, Massachusetts

L. W. Jenkins
Peabody Museum of Salem

John Haskell Kemble
Pomona College

Dudley W. Knox
Commodore, U.S.N. (ret.)

W. Kaye Lamb
Dominion Archivist, Ottawa

John Lyman
Hydrographic Office

John W. McElroy
Captain, U.S.N.R.

Arthur Pierce Middleton
St. Paul's Rectory
Brookfield Center, Connecticut

Charles S. Morgan
Concord, Massachusetts

Cedric Ridgely-Nevitt
New York City

Harry Shaw Newman
New York City

Stanley Pargellis
Newberry Library, Chicago

W. J. Lewis Parker
Lieutenant-Commander, U.S.C.G.

Critchell Rimington
New York City

R. A. Skelton
Hakluyt Society

Herbert L. Stone
New York City

Charles G. Summersell
University of Alabama

D. Foster Taylor
Wollaston, Massachusetts

Frank A. Taylor
U. S. National Museum

William H. Tripp
Old Dartmouth Historical Society

Lawrence C. Wroth
John Carter Brown Library

THE AMERICAN NEPTUNE is published quarterly in January, April, July, and October, by The American Neptune, Incorporated, a Massachusetts charitable corporation, with offices at the Peabody Museum, Salem, Massachusetts. The officers of the corporation are: S. E. Morison, President, Walter M. Whitehill, Secretary, Ernest S. Dodge, Treasurer, and Priscilla W. Ratley, Assistant Treasurer. The support of the journal depends upon receipts from subscriptions, and no payment is made for contributions or for editorial work.

The subscription rate is $6.50 per year. Subscriptions are accepted only for complete volumes, which coincide with the calendar year. In return for subscriptions received after the beginning of the year, subscribers will receive the numbers that have already appeared in the current volume, as well as the numbers that will be published during the remainder of the year. Complete sets of back numbers are available at $5.00 per volume through 1951 (Volume XI). Single copies of current numbers will be supplied at $1.75 each, and certain back numbers can be purchased at $1.25 each, but in cases where the supply is considerably reduced some numbers will only be sold as parts of complete volumes.

The Editors of THE AMERICAN NEPTUNE assume editorial responsibility, but they and The American Neptune, Incorporated, do not necessarily endorse the opinions expressed by authors. *Notes for Contributors to THE AMERICAN NEPTUNE*, a folder summarizing the rules of style to be observed in preparing manuscripts, will be sent upon request to prospective contributors.

Subscriptions should be addressed to The Assistant Treasurer. Manuscripts, books for listing, and correspondence should be addressed to The Managing Editor,

THE AMERICAN NEPTUNE
c/o Peabody Museum, East India Marine Hall, Salem, Massachusetts.